

ITEMS OF INTEREST.

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ORIGINAL COMMUNICATIONS.

THE EDITORIAL FUNCTION IN DENTAL JOURNALISM.

Dr. Frank W. Sage, before the Columbian Congress.

The history of dental literature offers a vast accumulation from writers of all degrees of attainments. In the earlier journals we are impressed that everything not actually foreign to dentistry was accepted as "grist for the mill." Nor has time altogether removed this feature of dental journalism. The most obscure member of the profession, with no marked command of language, and even a trifle "short" on ideas, has been welcomed by some journals, when they should have been repelled by the editorial intimation that his contribution was not fully worthy of the reader's attention. Seeing himself in print, he finds it in his power to place the editor under obligation to him, by sending something else to help fill his pages. Had the editor not hinted a paucity of contributions, by cullings from sources outside the profession? This tyro has penetration enough to perceive that page after page of his journal was often loaded with swelling phrases which meant nothing in particular, or were not infrequently mere paraphrases of familiar passages found in standard dental or medical works. The prosiest writers on the tritest subjects appear to find no difficulty in getting into the journals. He has discovered the great eagerness of some editors to publish papers without question as to their character or worth; that it was an editor who suggested the employment of a stenographer to report the discussions, and that he insisted on having a full, copious report, irrespective of brains. Then, when a month later the report was printed, there were the exact words published without revision or discretion as to sense or nonsense. It appeared to be the editor's duty, admitting of no question, to promulgate the wildest theories, the baldest speculations, the weakest silliness of Smith, Brown and every other speaker. Such discussion gives the life of the convention and the journal.

Let us consider what seems to be the function of the dental editor. Looking through volumes of five of our dental journals,

we find about one page of strictly editorial to every fifteen pages of other matter. In the secular press the men who give the paper widespread reputation and influence are primarily the writers of the leaders. And this is correct, for editorials are essential to the fullest measure of success in our journals. Is it true that the real strength and influence of our dental editors appertain to their writings—as editors? Have they not invariably made their reputations as dentists, as lecturers in colleges, as debaters, as essayists, before they came to occupy the editorial chair? Should we not, therefore, look to them for skill as writers and clear delineators of approved manipulations, and actual discoverers of new processes and materials? Should we not reasonably expect a reflection in them of the progress of the profession?

This is not an arraignment of our dental editors. There seems now, however, to be a call for improvements. It will not do to underrate the critical faculty of the average reader. The man who yawns, and skips an article before he has fairly dipped into it, usually has a reason for doing so, though he may be unable to state his reason in more explicit terms than that the article fails in interest. At a glance we detect obscurities, faults in style, wordy diffusiveness, and our condemnation is infallible. These faults call for editorial revision. We find them even in our standard text-books.

Since the success of a treatise on dental subjects is so largely dependent on clearness and diction, it should be revised by some one thoroughly conversant with the art of composition and familiar with the subject treated. Who shall this person be, if not the dental editor? There would be less work for the editor if at our conventions there was a responsible and capable Board of Censors to meet a writer on the threshold, with the right to examine his MS. and pronounce judgment on its fitness. The clearness of some statements is questioned when the paper is read, but even this does not suggest to the author the revision of his paper. There is, however, some excuse for this. The oversight is doubtless often caused by a too ready assumption that inquiries are directed against assertions or propositions stated; whereas the author has failed, through unskilful use of words, to make himself intelligible. These faults, of course, mar the perfection of his work when printed. Hence, valuable time is wasted in the convention and valuable space in the journal.

It seems that readers of papers in our conventions are seldom conscious of being criticised on literary style, faults of omissions and commissions, by fellow members. The members themselves, singularly enough, are not conscious of being, in a literary sense,

critical. This forcibly suggests a need of revision. Again, why not our editors? The editors of the great secular magazines do not hesitate to suggest, even to writers of distinction, changes in MSS. submitted to them. Publishers are supposed to know best what the public want, and authors should usually defer to their opinions.

Now, why should not the same deference be made to the opinions of dental editors? Why should they not be consulted in deciding what amendments are required? Probably, because the editors have not arrogated to themselves any such prerogative. Quite as probably for the reason that writers have regarded their productions with too much complacency. No one has ever ventured to call their attention to literary faults.

Has the time arrived for dental editors to take a higher stand in this matter? Will it not be demanded of them by their readers, in the near future? Shall we not have a Board of Censors to pass judgment on papers submitted for reading in our dental conventions?

What would be the probable effect of putting into operation this double suggestion? First, the contributor would be stimulated to self-improvement as a writer. Secondly, the editor would be put on his metal, and possibly stimulated to more worthy effort in his own writing. It would further serve to create a distinction between such journals who aspire to lead and instruct their readers, and others obviously mere mediums for advertising dental adventurers. It would undoubtedly increase the circulation of our journals, for it would rid them of the rubbish now incumbering their pages.

Let us cut out all irrelevant matter from our journals, or rather keep it out, and put a premium on brains.

Our editors should put a few salutary restrictions on contributors. Pay something for contributions if necessary, but pay for an article as a guarantee of real worth in the article accepted. It is the placing of a premium on the privilege of being admitted to the columns of the journal, and it is an assurance to the writer that acceptance of his article is not on the editor's part merely an act of gracious compliment.

The dental editor must also be a reviewer and expositor. Shall we not have more exhaustive, systematic effort on his part in recapitulating the important features of dental progress, the really valuable ideas adduced in our literature?

Dental literature has reached a stage of development where editorial safeguards can no longer be neglected without protest. A few of our text-books have too much "padding;" some reflect too conspicuously the personality of their authors.

But it is in the published reports of discussion in our conventions that the need of editorial revision is most palpable. Many of these reports could be cut down one-third or one-half with very desirable effect.

This fault of lengthy, indiscriminate articles and reports is, happily, less common to-day in our best conducted journals. Dental editors seem to be grasping the idea that their journals should be made acceptable to the general reader, as well as to those who contribute to the discussions and furnish papers. They are awakening to the fact that the reader wants the "gist" of discussions. Of course, much latitude must be allowed our extemporaneous speakers in conventions. It would take all the life out of our discussions if these men were made to feel that they must measure their words to avoid every superfluous expression. They must be left untrammelled to range over the field of the subject, as the inspiration of the moment dictates. But the stenographer has only half learned his trade, who has not learned the futility of attempting, in every instance, to photograph in his report the spirit and "atmosphere" of the speaker's efforts; and still more judgment is required of the editor.

The editor, who is present to listen, has an advantage over the stenographer. The mechanical execution of his task restricts the reporter to the mere *sound of words*, leaving him small opportunity to note their sense. After an experience of twenty years' shorthand reporting in dental conventions, I am of opinion that but few speakers appear at an advantage in a verbatim report. They appear better in print in a synoptical report.

But of the editor as a writer, what more can we say than to plead for more earnest effort? It has been for years the fashion to say that there is nothing new to write about. This is not now, nor has it ever been, true. The quality of newness inheres in the writer who presents us a new picture—new in its being unlike the conventional pictures to which we have been accustomed.

It is, however, difficult to say just what the editor should do. The editor needs to write more, if he would enjoy the full measure of honor appertaining to his office. At present, our journals are almost without exception joint-stock concerns, in a sense unsuspected by their editors. Let us hold up the hands of the editor and make him the central figure, let us concede to him the right and privilege of infusing more individual spirit into the journal, even at the expense of the contributor's idea of what the reader wants. Thus shall we confer on the journal a distinctive character, extending its influence and fixing the standard of its authority.

CORRECTING IRREGULARITIES.

*Dr. V. H. Jackson, New York.**

In the system introduced by Dr. Jackson the appliance is constructed of wire, with a base wire, so termed on account of its being the foundation portion of the regulating appliance, to which "cribs" that clasp the teeth for anchorage are attached, and also springs to cause pressure in correcting the position of irregular teeth. The base wire can be made of any metal desired, and should not be springy, but stiff and unyielding; can be made any shape, round, square, or flat, round being usually preferred.

A perfect plaster model of the teeth should first be made and carved, especially the gum portion at the necks of the teeth, to be used as anchors.

The "cribs," forming a partial clasp, are made preferably of gold or German silver, about No. 33 to 36 Brown & Sharp gage, hollowed and shaped accurately to fit the contour of teeth to be used as anchors, and arranged to press well up about the neck, and made to curve sufficiently over the prominences of the tooth toward the grinding-surface to prevent the appliance from pressing on the gum. The partial clasp is arranged on the side of the tooth to which the base wire is to be attached.

If adjoining teeth are to be used as anchors, partial clasps should be arranged on each so as to touch each other at the junction of the teeth.

A spring wire, about No. 22 B. & S. gage, or a little larger, is formed so that it will fit the labial side of the tooth to be moved, both ends passing over the arch at the junction of adjoining teeth, and curved about the lingual side near the gum line, to rest on the metal described. It should be made to fit loosely, so as not to injure the plaster model in removing it.

The clasping power of the crib depends on the spring properties of the metal used for the springs. Piano-wire is at present the most efficient. When the appliance is adjusted in the mouth, proper pressure is applied by making the necessary changes with the clasp-bender. In uniting the metals of the crib to the base wire, solder with either soft or silver solder, soft solder being used for attaching the parts constructed with piano-wire. If silver solder is used, the parts should be held in position on the model and united with hard wax, after which remove together, and invest sufficiently with plaster and sand to hold in position while soldering. The springs for moving the teeth are most easily attached to

*In Columbian Congress. Reported by Mrs. J. M. Walker.

the base wire with soft solder by first winding a narrow strip of thin metal (as tagger's tin, German silver, or copper, which have an affinity for the solder), around the base wire and the end of the spring to be joined. The soldering is done as described for joining the metals in the crib portion. From experience it is found that a crib attachment to but one tooth on each side of the arch is sufficient to retain and anchor the appliance in a proportion equal to one-half or more of the cases treated for irregularity. In young patients the second temporary molar, if firm in the arch, is utilized as an anchor, the rounded contour being especially favorable for attachment with the crib. From its position just in front of the first permanent molar, it receives sufficient support to insure good anchorage for moving the incisors forward, or spreading the arch. It is usually desirable, after the appliance is inserted in the mouth, that it should remain untouched for about three days, to accustom the patient to it. After that, the pressure may be changed once a week, or oftener. Pressure is increased by removing the appliance and bending the spring in the direction in which the force is desired.

Dr. C. G. Myers, of Galveston, Texas, has an ingenious method of fusing porcelain facing to backing and cap. The great objection to porcelain-faced crowns, he says, has been the liability of the facing to fracture, and lack of cleanliness. To overcome these defects, he has succeeded in fusing in the porcelain facing to the backing, and also to the cap, at the time of soldering.

The material employed is the white enamel used by jewelers in ornamenting gold. This comes in lumps almost as hard as flint, and is reduced to an impalpable powder by grinding in water in an agate mortar, and afterwards washing thoroughly. After fitting the thin pure gold backing as accurately as possible to the facing, remove backing, and with a fine-pointed brush place a small quantity of the enamel; mix with water to the consistency of cream on the back of the facing, but do not let it come in contact with the pins. Replace the backing, and bend pins slightly to hold it in place. Then place the facing on asbestos, and flow up backing with solder. The heat required to flow solder will also flow the enamel, forming a perfect union between porcelain and gold. In like manner the enamel may be used to fill any space between facing and cap, and when soldered it will form a perfectly clean as well as strong piece of work.

The enamel can also be used in gold plate-work when the teeth are to be soldered to plate, thereby doing away with the uncleanly joints so often found. By removing the objectionable features of work we thereby widen its scope.

Dr. George J. Dennis, Chicago, gives some interesting facts on the study of the "Masticating Force of the Jaws." The points sought are the extent of strain each tooth will bear. The means at hand for arriving at these conclusions from a scientific standpoint, he says, are insufficient. He has, however, by means of a finely adjusted and accurate instrument been able to secure some facts. He finds, after examining from forty to sixty mouths with the instrument, that the indicator, when placed between the molars of an adult, will register from sixty-five to eighty-five pounds. Between bicuspidis from fifty to sixty-five pounds, and between incisors from thirty to fifty-five pounds. In examination of children he has learned that the force exerted by the anterior teeth exceeded that of the post, this presumably by reason of the absorption of roots of temporary molars. His experiments prove that the generally accepted idea as to the possible extent of force exerted in mastication is very generally overestimated.

Dr. A. C. Hewitt says: Having had a central incisor knocked out at the age of eight years, he recovered it, wiped the sand off and forced it back into place by biting hard. The tooth, so rudely replanted, without any antiseptic precautions, remained in place till he was forty years of age.

Dr. Gordon says: I made a transplantation of the first superior bicuspid, and when placed in the socket found it loose. When secured by a splint it remained, and the case was presented to the society in France. This remained in place about eighteen months. I had no inflammation or suppuration, and the tooth remains solid.

Dr. Barrett says: When implantation was first proposed, with my usual impetuosity I pronounced it unsurgical and unphysiological. I have learned something since that time. We know that while we supposed formerly that bone and tooth-tissue were always due to the pericementum, we now find that it is not so. We find interspersed throughout the tissue of the bone the osteoblast, and wherever that osteoblast exists there may be a reproduction of the bone-tissue. We make in this operation an artificial cavity in the bone itself. What is the consequence? The reproduction of periosteum or pericementum. I conceive that there is a reproduction of periosteum or pericementum, but that there shall be any persistence of life of the periosteum after the tooth has been entirely desiccated seems to be utterly impossible.

We are all under great obligations to Dr. Younger for the persistency with which he has urged this, till it has, I believe, become an established system of practice. It has come to stay, and will not be a mere experiment hereafter. Teeth are occasionally lost of course, but do you never make a second plate?

A SHORT HISTORY OF DENTISTRY.

Dr. L. D. Shepard's Address in the Columbian Congress.

That dentistry to some extent is an ancient art cannot be questioned, but so meager are the references to it, in authentic remains, that we may dismiss it from consideration with the remark that nothing of value has come down to us from antiquity. The same is true of all the past up to the last century. In fact, even as an art, we may consider dentistry as modern, while as a science it is altogether modern.

There are no sharp lines of demarcation in evolutionary processes, and in their review we find the changes to be so gradual and long-continued it is difficult to fix on a time so distinctively marked as to be called a natal day. We have been accustomed to date the birth of man from his advent on the visible stage, and yet that day witnesses but a change of environment, and, as a large proportion of humanity believe, the birth of the soul dating months before. So dentistry had its embryonal stage; its inception is shadowed by the mists of antiquity. Through ages it slowly gained, and we cannot describe its progress. During the last century and in the early part of this century there were signs of life and movement, the quickening had taken place, the world was expectant, and the joyful consummation, by the birth of a new profession, freighted with beneficence to suffering humanity, occurred in 1839, in the city of Baltimore, by the organization of the first dental college in the world. There had been life before, as in the case of man, but the environment had so changed that now there was a new air to breathe, new sources of nutrition; the barrier of the previous restricted environment was removed, and there was free chance for growth to the stature of the full typical ideal.

Let us not forget to hold in the highest honor the devoted men who assisted at this birth. They are not the fathers of scientific dentistry—the primal causes date further back—but their care, their oversight, their efficient ministrations, in guiding and assisting in the culmination of evolutionary changes at its critical period, were creditable. They thought less of self than of humanity. The dental aspirant before that time found every avenue to knowledge carefully defended. Knowledge could only be obtained in the private office of a dentist, and the ambitious student was obliged to buy it, frequently at fabulous prices prohibitive to the majority. The dentist who had obtained reputation thus received considerable revenue from such seekers—and in time exacted a promise of the student to likewise guard the information imparted.

The Baltimore College of Dental Surgery was the first Thesaurus of dentistry. Here were first deposited the stores of knowledge which before were in individual keeping. Here, too, also for the first time in dentistry, for a stated moderate price, the student could draw from this treasure-house all the accumulated knowledge it possessed.

Let us bear in mind that the prominence given to the establishment of this first professional school, as marking a natal period, is not primarily because it was the first professional school; that is of course noteworthy, so is the establishment of a new manufacturing business in a community, for it may be followed by other enterprises, and so the place becomes prosperous—but the point should be emphasized, that here was the beginning of a change of *spirit* as well as of method. Before this it was a trade, ever mindful of self, accumulative, afraid of competition, exclusive, faithful to the immediate patient and anxious to do him good, but regardless of the rest of the world; dominated by selfish interests, carefully hoarded knowledge, with no broad professional spirit—no brotherhood feeling.

It is difficult to realize at this day when there is such freedom—such fraternal feeling, and actual competition to impart knowledge,—that such a contrast in professional spirit could have existed six decades ago. It is a fact, however, and there are members of this Congress who commenced their study of dentistry in the old way. In my opinion this change of spirit is at the foundation of the new era, and all progress since then may be said to rest on it.

With similar prophetic vision and patriotic motives in this same epochal year, the great hand-maid and co-laborer of the college was established by the publication of the first dental periodical in the world, the *American Journal of Dental Science*. The same spirit—the same ambition for the profession and the same regard for humanity—actuated the generous and enthusiastic founders of journalism as of the college.

As human nature is constituted, the college and the magazine are insufficient to redeem and to enlighten. A few are reached by these agencies, but to stir the great mass—the inertia of ignorance and routine—the magnetism of personal intercourse is needed. That the succeeding year, 1840, should witness the supplying of this requisite, is another proof of the vivifying forces operating at this period.

The same few pioneers of progress who started the college and magazine in 1839, in association with others of like spirit and motive on August 18th, 1840, met in New York and organized the American Society of Dental Surgeons.

No authentic records of any previous dental society exist. So this society may be respected as the prototype of the multitude of societies which since then can justly claim so great a share in the growth in which we rejoice to-day.

In the organization of this society, the resolution offered by Prof. Chapin A. Harris, for the appointment of a committee to draft a Constitution and By-Laws, commenced with these prophetic words:

"Resolved, That it is the opinion of this convention that the science of dental surgery would be advanced, and the interests of all well-informed practitioners and the community at large be promoted, by the formation of a National Society of Dentists."

And in the constitution adopted, the first article struck the key-note for all time in these words: "The objects of this Society are to promote union and harmony among all respectable and well-informed dental surgeons; to advance the science by free communication and interchange of sentiments, either written or verbal, between members of the society, both in this and other countries; in fine, to give character and respectability to the profession."

We thus see, within a few months, the erection of the great tripod on which all professional advancement must rest—the college, the journal, and the association.

"RUBBER-DISEASE."

Dr. H. E. Walker says he has seen a few cases of rubber-disease, and that it should not be confounded with mucous patches, that appear when the plate extends too far. What is known as rubber-disease is throughout the surface of the plate with a distinct outline at the end of the plate. He is inclined to think it is caused by rubber being a non-conductor rather than because it contains mercury.

Dr. G. B. Huff, Somerset, Pa., thinks that often troubles called rubber-disease are not rubber-disease. It may be caused by mis-fitting plates or deep air-chambers. The non-conducting property of rubber is the principal cause of the trouble. He has noticed what is called rubber-disease under gold and other kinds of plates.

Dr. I. P. Wilson, Burlington, Iowa, says that if the plate is left out of the mouth at night the trouble is usually avoided. Dentists generally advise their patients to keep the plate in all the time. If any part of the body were covered all the time an abnormal condition would be produced. If the plate is taken out at night and cleaned thoroughly, the mouth will remain in a healthy

condition in forty-nine cases out of fifty. The spongy condition of the mouth is noticed most frequently in the front part, and usually occurs where the molar teeth of the lower jaw are out, which throws the pressure on the front teeth.

Dr. E. S. Chisholm, Tuscaloosa, Ala., does not think rubber should be banished from artificial dentures. Generally, where patients have sores in the mouth, they do not clean them once in a week or a month. I have had an experience where a gold plate had been worn and produced that redness and tumefied condition, and by substituting a rubber plate the patient was entirely relieved. I never leave any rough surface. I scrape very delicately the surface of rubber plates with a small sharp instrument, and I do not have one troublesome case in five hundred.

Dr. Boyd: In regard to cleanliness, while gold plates are easier kept clean, they sometimes come to us very dirty. If the plate is kept clean, and is well adapted, with no air-chamber and the surface of the plate perfectly smooth, disease will be a rare exception.

Dr. J. D. Patterson, Kansas City: It is a surprise to hear so much on what is called rubber-disease. There is no such thing. It has been proved that the mercury in rubber is entirely inert. The first and prime cause is uncleanliness of the plate. A rubber plate perfectly polished inside and outside will be as good as a gold plate, except that the gold plate is a good conductor of heat; but if the rubber plate is taken out at night the irritation will rarely exist. I have had experience with gold, aluminum, and all kinds of rubbers, and I do not believe there is any poisonous quality in the rubber that affects the mouth. The little ducts are destroyed by keeping the plate in the mouth continuously; more, perhaps, in rubber because it is more confining. Rubber-disease has been unknown to me for fifteen or twenty years. It has been demonstrated that no deleterious effects can be produced by the presence of mercury in rubber.

The Christian folds his arms and sings of "Sweet, sweet rest," but there is no rest in inactivity; the conservative cries, "Peace, peace," but the demagog is plotting war; the rich man dreams of security, but the thief is robbing his vaults; the Christian's inactivity is death; the conservative's peace is destruction; the rich man's safety is in throwing his bread on the waters. So with us as professional men, our rest comes only through severe labor, our peace is at the farther end of the struggle, and our wealth depends on what we can give for the public good.

TREATING PULPS.

Prof. Frank Abbott, New York, in Columbian Congress.

For years I have had a rather unique practice. I never depend on the application of an antiseptic in the roots of teeth, but on a material which I force in and around them, with which is combined an antiseptic strong enough to answer the purpose, and virtually mummify all the material that is left in the canals of the tooth by its action. It surrounds and covers it over, and whatever portion of the pulp is left behind is penetrated by the action of the chlorid of zinc and bichlorid of mercury mixed with it. Of course, if the pulps die, they die of their own accord. I have many dead teeth to handle and many to treat, and they are all treated in one general way. Open the pulp-chamber as carefully as possible, cleanse it thoroughly of every particle and get thoroughly into all root-canals. Then, with a very fine gold-pointed syringe, use a 1 in 10,000 solution of bichlorid of mercury—a grain of bichlorid of mercury in twenty ounces of water—and syringe out these canals as thoroughly as possible, then with a broach or small instrument I penetrate into the canals as far as I can go, stir up the contents, and then wash again, repeating this till everything is clean, so that the substance coming out of the tooth as it strikes a white napkin will show white, instead of staining as when the canal is filled with dead material. When washed thoroughly clean, I fill with oxichlorid of zinc, in which I put a drop of a solution of 1 in 2,000 of bichlorid of mercury, thus combining the antiseptic properties of the bichlorid of mercury and the penetrating and antiseptic properties of the chlorid of zinc and oxid of zinc.

This material mummifies or holds the substance left in the roots of the teeth, leaving it in a satisfactory condition; and it may astonish some of you to know that instead of opening a tooth and treating it day after day for a week or more, I open a tooth and fill it at the same sitting always, unless I have periosteal irritation—soreness of the tooth—as I touch it. The crown of the tooth is filled with gold or any other substance, and the patient is dismissed after painting the gums carefully over with a solution of concentrated tincture of aconit root and tincture of iodine. This I always do before my patient leaves the chair. It is a powerful counter-irritant, and does the work of relieving the pressure around the root of the tooth. This to me is the simplest, easiest and most quiet way of getting along with that kind of teeth.

It is the decomposition of the canal contents, and the gases

accumulating from that decomposition forcing themselves into the pulp-canal that cause pain in such cases; the gases cannot get outside because the cement on the surface of the root is living tissue, consequently all openings into the structure are closed to the escape of gas, except that which would be taken up in the circulation. In the other way, the opening is there so that all the gases pass into this pulp-canal.

In the substances used for root-filling, we must bear in mind that the results of decomposition are what we have to deal with, not the decomposition itself.

In the Columbian Dental Congress Dr. I. P. Wilson, Burlington, Iowa, spoke on the pathological conditions of the air cavities of the cranium resulting from dental lesion, and of the usual uncertain origin of these diseases, and the fact that they were too often treated for general "catarrh" instead of a local disease of some of the cranial cavities. Incipient affection of one part rapidly leads to a general diseased condition of all the air passages. A more complete anatomical study of the relation of the bones adjacent to the air passages was urged; also of their cellular structure and mucous covering. He dwelt particularly on the antrum of Highmore or maxillary sinus, which was more subject to disturbed dental influences than the other cavities, and so brought more closely to the dentist's observation. The protruding roots (usually buccal) of bicuspid and molars, with putrescent pulp penetrating somewhat into the floor of the antrum, having their apices covered with but a thin plate of bone, were a frequent source of antral abscess. After a discharge from such a protruding root a chronic disease ensued. Several interesting cases were cited and general remarks made in regard to treatment. Good drainage, cleansing, antiseptic washing and systemic treatment were called for. Some of the effects of these diseases of the air cavities were given, among them loss of smell, absence of resonance of the voice, morbid growths along nasal openings, such as polypi.

In the discussion of this paper Dr. Frank Abbott, New York City, emphasized the value of warm solutions in these sensitive cavities and the danger of using medicaments too powerful for the membranes affected. He uses a syringe with a perforated point—many openings serving to more thoroughly wash all parts.

It is to be regretted that this whole subject is not better understood by the mass of the profession. If we would maintain our profession as a learned profession we must know more of surgery.

ALVEOLAR ULCERATIVE STOMATITIS.

The patient, a clerk, aged 25, moderate smoker and drinker, complained of severe pains in his teeth when coming in contact with hot or cold drinks; also, of soreness of gums and teeth in masticating food. The gums at the gingival margin of the right upper lateral and cuspid and lower incisors were in an ulcerated condition. The raw edges of the gums were of a whitish color, and on pressure purulent matter exuded from around the affected teeth.

After thoroughly removing tartar, I washed the parts with dilute sulfuric acid, 25 per cent, and dismissed the patient with instructions not to use tobacco or liquor. Twenty-four hours later the condition of his mouth was much worse. The entire gum margin of both maxillaries were affected, and most of the teeth loose and sore, with extensive sloughing. I then used sulfuric acid full strength on a pledget of cotton, giving him a bottle of listerin to use as a wash. I used this treatment for three days, and in six days from his first visit, the gums were entirely well and the teeth firm, with no soreness. It is now six months since treatment, and there has been no recurrence of the disease, and the teeth have not suffered from the effects of the acid. There was no history of any specific disease, and to me its etiology is clothed in mystery. The attack spread in forty-eight hours from the first symptoms till the entire gums of both jaws were involved.

T. A. Mayhew, Conway Springs, Kan.

When I first went to England in 1856, to mention the subject of operative dentistry in England was to cause an exceedingly broad smile. For, with one or two exceptions, there was not a man in all England that could make an operation in the mouth that was fit to look at; and the most astonishing part of it was that the only two men that could were almost unknown. There was one man who stood head and shoulders above every one in England whom I came in contact with. He had a brother, whose name, I think, you will frequently see somewhere in Illinois. This man was an excellent operator. He was a man who at that time would have been in the front ranks of operators in one of our States. In London he was not appreciated. It took a long time to convince our English friends that conservative dentistry was a thing that was worthy of their attention. But, if you want to understand England and the English, you must understand that England has about as many varieties of people as any country on the face of the

earth. You will hear as much nonsense talked as you will in any place in the world. But behind that, there is common sense among the English people. This common sense asserted itself. Now, I can refer to operators in England who would astonish you for their honesty, integrity and the solidity and the beauty of their work.

Dr. Shaw, England.

A convenient way to make and keep a 4 per cent solution of cocain is

R. Hyd. chlor. cocain..... grs. xxxviiij.
 Glycerin..... fl. ℥ij.
 Aq. pura.....ad. fl. ℥ij.

M.

Thus prepared and covered from the light the solution will keep an indefinite time.

An admirable, safe, efficient cleanser of instruments, antiseptically, is hydronaphthol. I am indebted to Prof. Harlan for the suggestion that has led to the use of this valuable drug.

R. Alcohol..... fl. ℥ij.
 Hydronaphthol..... grs. xx.

M.

Put into a wide-mouthed bottle, as a quinin bottle. Dip your instrument, whether excavator, forceps, searcher, or pyorrhea blade into the liquid, and lay away to dry. The most delicate steel will not be tarnished by it and it needs no wiping.

Dr. A. C. Hewitt.

OBTUNDING SENSITIVE DENTINE.—After applying the rubber dam, fill the cavity with solution No. 1, slightly warmed. Follow this by a continuous blast of warm air till the contents of the tubuli are thoroughly extracted. Then apply solution No. 2 direct to the cavity in liquid form. Force on this a warm vapor from a suitable glass cylindered hot-air syringe. When cavity is dry excavate with a small, sharp bur with light and rapid motion, always cutting from the pulp.

Solution No. 1.

Absolute alcohol..... 1 oz.
 Veratria..... 8 grs.

Solution No. 2.

Oil cassia..... 50 parts.
 Absolute alcohol..... 40 parts.
 Campho-phenique..... 5 parts.
 Carbolic acid..... 3 parts.
 Oil cloves..... 2 parts.

Wash the cavity before removing the dam.

Fred Adolph Kotts, Manchester, Mich.

PLATINUM PLACERS.

F. Posepny, Vienna, Austria.

Detrital deposits of platinum have been, till recently, observed in the Ural only, from which the main supply of platinum was derived. Additional localities are now reported in the Altai district of Siberia, and in Canada and British Columbia. In the Tulameen district, it is said, the hydraulic method of mining has been introduced for platinum.

In the Ural, and particularly in its most productive district, Niznyj Tagil, the conditions closely resemble those of gold deposits. The richest platiniferous layers are on the true bed-rock. Platinum and its associates, palladium, nevjanskite and siserskite, occur occasionally adhering to olivin and chromit, and supposed to be derived from the serpentinite, which is itself a secondary product from olivin rocks. More recently, platinum is said to have been found in an olivin gabbro not yet metamorphosed; but whether the metal is a primary or an exotic constituent, can scarcely be declared.

Formerly no other occurrence of platinum than the native metal was known; but now a platinum ore has been found in the Sudbury district, Canada, called sperrylite, a compound of platinum and arsenic. Since this is certainly xenogenous, the question as to the original sources of platinum deposits is advanced to a new phase by its discovery.

Speaking of the action of our English brethren toward the Dental Congress, Dr. George Cunningham, of Cambridge, England, said in the Congress: "Owing to the most regrettable misunderstandings—and I must confess it, a certain element of narrowmindedness—we find ourselves bound to accept the decision of the societies to which we belong." When "these societies" get over their fret they will regret it, too.

The idea of going about with our face long from brow to chin instead of from ear to ear! We were made to laugh for the whole world, for we are the only creatures in it who can laugh. Then let the world ring with our good cheer. With a smile and good will we shall be better welcomed in our business and in our homes. But it must be genuine; it must be from the heart. Only what we are makes our real atmosphere, influence and success. "Laugh, and the world laughs with you. Weep, and you weep alone!"

CURRENT THOUGHTS.

STORAGE BATTERIES AND THEIR USES IN DENTISTRY.

W. W. Vance, D.D.S., Lincoln, Nebraska.

I consider the dental motor of primary value ; next in importance is the laboratory motor for driving the grinding and polishing lathe ; next the electric mallet, then the root canal dryer, the mouth lamp and warm air syringe or blower. As for the dental engine operated by electricity there are a number of forms, enough at any rate to satisfy the most fastidious. I prefer the motor for general use, mounted on a bracket attached to the wall or window casing. A motor thus mounted is out of the way when not in use, and does not take up any floor space. It is, when properly adjusted, as noiseless as the dental engine, and easily brought into play when needed without unnecessarily alarming the patient.

For the laboratory motor, at least a one-eighth horse-power motor should be supplied, and may be either shunt or series wound. When operated by the incandescent electric light circuit, a series wound machine is to be preferred, but for a battery circuit from a storage battery a shunt wound machine will give better results, owing to the low potential of the current. For operating such an electric plant by storage batteries would require six to twelve cells, owing to the make, as different makers and different types of cells give varying quantities of current.

The storage battery is the best for dentists, because it is the few who are so fortunately located as to have access to a city day-circuit, and it is the storage battery alone that makes it possible to avail ourselves of this current.

Of course, the first cost of such an installation is considerably more than where direct connection can be made to a circuit, but there are several advantages that the accumulator installation has that more than counterbalances the cost, and not the least of these is its absolute safety from shock if properly protected by switches or cutouts when not charging, but when the operation of charging is going on it should be disconnected from all devices by switches, and especially such as are used about the chair if a fountain spittoon, steam, water or gas pipes or gas bracket are within reach of the chair.

Large installations are best charged from a constant potential (incandescent) circuit, but small installations, such as are used by dentists, are best charged from the constant current (arc) circuit.

The reason for this seeming difference exists in the fact that as the cells or accumulators each have about two volts potential, it follows that there will only be as much counter electro-motive force as there are cells multiplied by two, that is for twelve cells connected up in series, twenty-four volts. In large installations, such as are used for auxiliary lighting or for street car propulsion, a large number of cells are required, each giving two volts to the cell, this gives a counter electro-motive force of a voltage approaching that of the ordinary constant potential circuit used for incandescent lighting, consequently the full force of the charging current may safely be turned into the battery without danger of damaging the plates forming the cells, and as the counter electro-motive force of the cells in series is sufficient to prevent an abnormally large current from passing, it must be remembered that the charging current always should go into the battery in the opposite direction from the discharging current given off, and till the charging current has a voltage equal to and a little above the voltage of the battery no current will go into it, but in an installation of a small number of cells where the voltage of the battery is not close to 100 volts, the incandescent current, such as the Edison and similar circuits of about 110 volts, would charge too rapidly and ruin the battery by warping the plates, as it is the quantity of current that passes through the battery that does the harm. However, while the voltage of the incandescent current is low as compared with the arc light circuit, the quantity is constant in the latter and many times less than the incandescent circuit; and while the voltage of the constant current (arc) circuit may vary according to the number of lights burning, which is usually from 1,500 to 3,000 volts, yet the quantity is practically unvarying, and is only about nine to twelve amperes. This being all there is of it, it can all pass through the battery without doing any harm, and the variation of voltage cuts no figure because the quantity is limited. These are briefly the reasons for using the arc circuit for charging small installations of accumulators.

We are apt to measure others by our own standard, and I beg your indulgence if I mention my reasons and point out difficulties which experience has proven to me exist, but that were not so manifest till after I had learned by trial that better things and methods exist than we have been using, and flattered ourselves were very good and rested content to use, till competition forces us to investigate and adopt better methods. In the first years of my practice I depended on the ordinary dental engine, and considered it a great advance over the long handled burs and drills rotated between thumb and finger with the end of the handle resting in a

bur thimble supported by a ring over one of the fingers and the socket in the palm of the hand. Such methods were used by my preceptor when I first commenced the study of my profession, but were soon after discarded for the more modern method known as the dental engine. Finally I thought that even that instrument could be improved, and some of the disadvantages it possessed might be wholly or partly eradicated. Among those disadvantages were the contortions we were obliged to assume to see our cavity and at the same time tread the engine (for you must remember that all did not have the extremely flexible Johnston spring at first); then a high speed was not obtainable without considerable effort. This caused unsteadiness of the hand. The engine was almost of necessity placed at the right of the patient and a little in front of the operator, a position many times awkward and unsatisfactory.

All of these things I readily saw could be eliminated by the use of an external application of power, and especially if the motive power could be placed or brought to a position directly in front of the patient and made capable of an upward and a downward movement, and also adjustable either to the right or left, sufficiently to accommodate the position of the operator's arm. The electric motor solved this problem directly, and only had the disadvantage of needing intelligent and painstaking care of the battery. This care and attention, however, brought, by reason of occasional neglect and carelessness, unreliable results, and sometimes the motor or mallet would not work. Here, then, was a difficulty unlooked for, which soon brought the whole into disfavor, not alone from those who met disappointment, but by others who "suffer the ills they had rather than flee to others they knew not of," but had received descriptions of from their unfortunate brothers. The direct current when obtainable seemed to offer the best solution of this battery difficulty, and for laboratory use this is undoubtedly so yet. But for operations at the chair new difficulties arose. Primary batteries were always of low potential, and there was no difficulty from shock, but not so with the dynamo current of 110 volts potential and upward, for they frequently, and in practice, are almost invariably grounded, a fact which always rendered its use at the dental chair likely to give a slight shock to the patient if favorable conditions chanced to exist. One of these was the use of a fountain spittoon attached to the chair, and especially on damp days. Gas, water and steam pipes in such proximity to the chair as likely to be touched by the patient was another. All of these difficulties are avoided absolutely by the agency of the storage battery.

For operating the miniature lamps, the hot air syringe and root canal dryer, while it is possible to do so with the direct current from the dynamo furnishing current for incandescent lighting and power, it is not the best, because the heat generated in the controlling device is too great to be conveniently disposed of except by converting the incandescent current into motion by means of a motor, and this motion of power back into current of low potential and great quantity by means of a properly constructed dynamo, either mounted on the same base with the motor, or driven by it by means of a belt. Such a dynamo need not be larger than an ordinary one-eighth horse power motor, and can be obtained from any manufacturer of motors; the type can be the same as the motor, the difference being in the winding. The storage battery solves all of these difficulties, viz., no shock, for if ordinary care is taken there need be no "ground;" large quantity and low potential, as perfect control as the most exacting could possibly wish, and last, but not least, good and reliable service with a minimum amount of care.

It is not within the province of this paper to suggest any particular battery, but my own observations along this line lead me to believe that we may expect some very excellent results in storage batteries and great improvements in the next year or two. But if any are contemplating adopting electricity, my advice is not to wait; the extra expense incurred by any change in your battery will be more than made up by the good you obtain by early adoption.

A few suggestions may not be amiss in regard to your installation. Locate your battery in a convenient and sufficiently light place, so as to be easy of access and inspection. Inspect it every day, and always before commencing to charge. See that the active material in the plates does not fall out and accumulate at the bottom of the cells, so as to touch the plates; this would cause a short circuit and injure the plates, also diminish the power of cells. Use well-insulated copper wire, of not less than No. 15 B. & S. gage, and No. 12, especially if the battery is located more than twelve or fifteen feet away from your appliances at the chair. The reason for this is that the quantity of your current should not be wasted in traversing an unnecessary length of wire, or the force or voltage of the current reduced by the high resistance of small wire external to the magnet coils of your motor or mallet; this loss is reduced toward the minimum just in proportion to the increase in size of the conducting wires leading from the battery to the motor.

The Donaldson-Macrae battery comes as near fulfilling the requirements of the most exacting demands of dentists as anything I have investigated, and has some special claims not made for any

other storage batteries I have had the privilege of investigating. Among these is the impossibility for the active material to fall out and accumulate at the bottom of the cells; impossibility for the plates to warp, and the fact that the amount of charge remaining in a cell at any particular time can be very nearly calculated by simply measuring the specific gravity of the fluid in the cells. They are put up in a convenient form, and have a capacity sufficiently large, so that the least number of cells indicated in the earlier part of this paper will be amply sufficient to operate a one-eighth power motor, together with such other electrical apparatus as the dentist will require.

Dental Review.

TREATING A TOOTH WITH EXPOSED PULP.

Dr. C. Harker.

The plug is removed, or, if a fresh exposure, place over the exposed portion of the pulp pure carbolic acid for about two minutes, then, covering with sandarac and cotton, dismiss till the next day; at which sitting the previous medicament is removed, and the arsenious acid applied directly to the exposure, sealing again with sandarac and cotton.

I request the patient to call on the fourth day, when the arsenic is removed, the pulp entirely uncovered, and a portion excised, bleeding it freely to prevent pinking of tooth during the waiting time, about three weeks, while nature is deciding how much of the pulp she will give up. I then place in the pulp chamber a piece of dry absorbent cotton, carrying as much as it will of iodoform powder, the piece of cotton being large enough to fill the pulp-chamber.

The cavity is then filled with a temporary gutta-percha stopping till the final operation, when I place dam on the tooth, and extract pulp from the roots. With No. 7 or 8 uncut Swiss broach having a perfect taper point, I work a mixture of campho-phenique, iodoform, and zinc oxid to apex, following with a tiny fiber of cotton, carried as nearly to the point as the previous mixture will allow without painful pressure.

This procedure insures carrying a bland sterilizing apical stopping entirely to the so-called "apical space"—that is, to the borderline separating devitalized dentine from living cementum and its investing membrane.

Removing with a broach the fiber of cotton, and drying the canal as thoroughly as possible, the remainder of the canal, when of normal calibre and formation, is filled with a gutta-percha cone

made to fit the canal, the point of the cone having been moistened with chloroform previous to introduction.

The apical portion in two-rooted bicuspid, compressed anterior root of lower molars, and other tortuous or constricted canals, may, by using No. 7 slender Swiss broaches, usually be well filled either with the antiseptic material I have indicated or with chlorogutta-percha.

Except for the removal of adherent and other calcific deposits, I never ream canals more than may be done with ordinary bud-shaped excavating burs; canals which may not be reamed without great danger of going through the side of the root or breaking off the reamer, may be well filled without reaming. Nicely-tempered slender broaches adapt themselves without danger of breaking; reamers do not.

There is a field for the exercise of judgment in removing or overcoming the occasional difficulties of the apical territory, which perhaps no written description would cover, but which the cultivated judgment and touch, together with delicately-formed and properly-tempered instruments, will enable us to surmount with comparative ease.

Some of these exceptional conditions would have caused trouble, and ultimately death, had the pulp been capped and the capping operation itself been successful.

I do not remember ever having heard mentioned the method of approach which I use in dental exposures of lower molars, and would call attention to it, knowing from practical experience that by cutting away the posterior buccal corner as far as the buccal seam, instead of the usual drilling of a hole through the buccal wall, our light, line of vision, directness of approach and movements of instruments are less obstructed.

I think you will also agree with me that, in addition to facilitating the whole operation, a tooth thus prepared is stronger than when filled in the usual way.

Let me say that if the arsenic has been well triturated, the proper dose used, the nerve well exposed before applying, the sandarac bottle warmed before using, and no pressure made on the pulp in sealing up, there will very rarely be any pain from the application, and no danger from the effect of arsenic on external peridental membrane, either about the apex or gingival margin.

If the effect has not reached through the whole extent of the pulp, I remove the portion devitalized, re-apply a minute quantity of paste—one part arsenic to ten parts iodoform, moistened with campho-phenique—or anesthetize with cocain, and remove.

I much prefer removing the entire pulp to the apical constriction, but, if unable to do so, no harm will come from leaving in the canal the slender apical fifth of pulp, whether dead or alive, provided the antiseptic filling I have recommended be well picked into it; if not dead, it will die, and make a fairly good apical filling. When trouble follows devitalization, it is from one of two causes—either periodontal irritation arising from an overdose of arsenic, or ultimate disintegration and evolution into septic gases of unsterilized, shred-like portions of the pulp remaining in the inaccessible portions of tortuous or constricted root-canals. In my experience the former difficulty rarely occurs, and always subsides in a few days without treatment.

International.

TRAINING THE CHILD IN ART.

Dr. Ottolengui, of New York City, tells this story: It is nearly twenty years since a cousin of mine married; he was fresh from European colleges, and filled with science. When his first boy was born, he looked up some books which he had seen in Europe to learn how to train his boy; he was going to bring up the child by a plan. It was hooted at. The first thing he bought his boy was a blackboard, and the first thing he taught him to do was to draw circles, just as Prof. Tadd shows; drawing them both ways and with both hands at the same time. Now it seems odd that I, who had as a child shared the prejudice against the system of this scientific cousin of mine, should really be a better dentist to-day on account of the manual training he gave his child. While I took considerable interest in what he had done, I was surprised to see this boy of seven or eight years of age originating some very beautiful and peculiar things on the board. I about that time was going to college, and had learned to fill teeth with the automatic mallet; then I had to have a tooth filled myself, and the dentist used the automatic mallet. I swore I never would use the automatic mallet, as it is barbarous. Then the question was what to use in its place. To use the hand mallet, it became necessary to have an assistant to mallet for me or to be able to mallet for myself. That immediately made a reversal; while I had been using the mallet with the right hand, I had to begin to use it with the left. I tried it but could not do it. I told my cousin that I regretted very much that I had not been trained as his child was, to know no difference between the right and left hands. He said it was not entirely too late yet. He then called his second boy, who was five or six years of age, and gave him a piece of thin

paper and two pencils, and dictated a sentence. The boy started in the center and wrote away from the center with each hand. The paper was then folded over and the lines were held to the light, appearing almost coincident. This showed that the boy's muscles were trained in pairs, and he could do almost the same with one hand as with the other. It pointed out another fact, that while we educate a set of muscles we unconsciously or correlatively educate the corresponding muscles so that they may have their natural powers. We write with our right hand from the left side of the body across; and if you take the left hand and try to do the same thing, you are attempting something that the right hand never did; to write in a direction similar to that of the right hand with the left you must commence at the right and write toward the left side of the body; then you are using the muscles in the same way. In a short time I educated my left hand to write that way. Looked at as it is written it is nonsense, but reverse it and hold it up to the light and you see it is similar, and has the same characteristics as the writing of the other hand. It shows the mind is educated through the hand. I systematically for several months practiced writing with my left hand, and then my manual training dropped off, and I used the left hand in my business, and now use my left hand with the engine as well as the right. This system of manual training is not as farcical as it looks.

Dr. Dwinelle, of New York City: Our hands and all parts of our mechanical system are called on to express the ideas of the brain and the soul. They are instrumentalities for that purpose. Our eye does not see; it is simply a camera-obscura that makes an impression on the retina; the image is formed there on the screen; and this retina itself is but an extension of the optic nerve, expanded and subdivided into infinite papille. The optic nerve does not see; the communication goes back to the seat of intelligent perception. The ear does not hear; it is a mere instrumentality. The auditory nerve itself does not hear. The impressions are carried back to the brain, and there the mind, the soul alone, perceives. The hand does not feel, with all its manipulative ability; it is a mere instrumentality, the expressive agent of the action of the mind for a purpose. It is the brain, mind, the inner consciousness, the soul, that feels and appreciates. Through our professional instruments we project ourselves still further—beyond ourselves, beyond our hands; we are thus enabled to give expression to the mind. The painter with his brush projects and extends himself beyond himself; thus we are further equipped with instrumentalities which give a higher expression to the conceptions of the soul.

RETENTION OF ARTIFICIAL DENTURES.

Dr. Storer Bennett, of England, advises the following: The aim of the experiments was to produce hinged bands, whereby teeth might be clasped around their most constricted portions, unimpeded, and even assisted by the overhanging portions of their crowns. He claims by his variation from ordinary construction, more accurately fitting, and in many instances smaller plates can be used. The bands are of two varieties, the st being self-adjusting, on the principle of the spring rings frequently attached to watch chains; the other a modification of the ordinary brooch joint.

To make the self-adjusting band: (1) Take a piece of thin gold tube about $\frac{3}{8}$ inch in length. (2) Make solid at one end for about $\frac{1}{16}$ inch by soldering into it a piece of gold wire. (3) Tap the opposite extremity with a screw for $\frac{1}{32}$ inch. (4) Saw a slot through the middle of the solid end of the tube parallel to its long axis, extending as far back as the hollow part, and rather farther on one side than the other. (5) Fit a small piece of flat gold into the slot to form a tongue or central portion of a hinge, the width of the tube, but projecting slightly beyond its anterior extremity. (6) Drill a hole in the solid portion of the tube and tongue at right angles to the slot. (7) Pass a pin through them, the pin being ultimately rivetted or screwed. A band having been accurately fitted to the model, is soldered to the anterior extremity of the tongue, and when this is replaced in the slot and transfixed by the pin the whole forms a hinged band. A piece of extended spiral spring is now thrust into the posterior end of the tube till it comes in contact with the back portion of the tongue, and is then held in position by a small gold plug screwed into the tube behind it.

It will greatly facilitate the accurate cutting of this slot if a small steel tube with a slot in one end be used as a guide, and if a hole is drilled in the template across the slot it ensures the hole in the gold tube being properly placed.

The band so formed may be attached to a gold plate by removing the spring and soldering the tube in the most suitable position, the spring being subsequently replaced and retained by the screw plug.

Where vulcanite is to be brought anywhere near the hinge, it is necessary before packing, so as to exclude the rubber, to introduce a little oxiphosphate, which may be subsequently dissolved with hydrochloric acid. The case is then ready for use.

It sometimes happens that it is convenient to have a band which can be opened and left in this position while the plate is being inserted or removed from the mouth; the band then being closed, and remaining firmly fixed till intentionally opened again. In this case the band is soldered to the piece of tube which forms the central portion of a brooch joint, the band being carried sufficiently beyond the tube to press on a small flat spring, bent into the shape of a horseshoe magnet. This causes the joint to open or close with a snap, the spring locking the band securely in either position. To prevent the ingress of rubber during packing, or of food when in use, the joint and spring are enclosed in a small gold box (measuring only $\frac{3}{16}$ inch in its largest diameter), which can be soldered to a plate or embedded in vulcanite.

Sometimes one or two teeth have been lost on one side of the mouth only, the resulting space being wedge-shaped, with the base toward the gum, owing to the tilting of the adjoining teeth. Such cases are usually treated, if treated at all, by inserting a plate which covers a large portion of the mouth, to insure steadiness and safety. So large a plate is a source of much inconvenience to the wearer, and the patient is frequently dissuaded from having such a gap filled up at all. The smaller plates can be made—consistent with their safety, steadiness and ease of insertion and removal—the better for the patient and the teeth.

By the use of the locking bands referred to, the treatment of such cases becomes easy. A plate no larger than the space, but which it accurately fits, has ordinary bands adjusted to the lingual surface of the tooth in front and behind the gap. Two locking bands are then adapted to the labial surfaces of these teeth in such a way that, when open, they are no wider than the width of the gap. Such a plate, when placed in the mouth with the bands open, may be dovetailed into position by pushing it outward from the lingual toward the buccal surface, and is secured by closing the bands, the overhanging crowns effectually preventing any upward displacement.

If the loss of a front tooth leaves such a wedge-shaped space with the base toward the gum, a plate tooth may be attached to a small plate by means of a brooch joint in such a way that the tooth may be placed in position by turning up the teeth completely out of the way. The plate may then be placed in the wedge-shaped gap, dovetailed into position, and the spring holds it firmly in its place. The method is as follows: A very small plate is used which accurately fits the gap; a thin flat tooth, having the pins as near to the neck as possible, is backed and fitted in the usual manner, so that a small band may be fitted on to the buccal

surface of the necks of the adjoining teeth. The small plate has a very small band passing behind the tooth on either side of the lingual surface to prevent the plate being dislocated forward. Next a piece of 12-karat plate has two parallel lines cut into it, so as to somewhat resemble a comb with three equal teeth. On the outer part of the comb a small piece of tube is soldered. This middle piece of tube is then soldered on to the backing of the tooth, a pin is run through the hole, forming a common brooch joint which allows the tooth to move upward and downward on the comb. The back of the comb is now soldered to the plate immediately behind the backing of the tooth. If now a pin is run through all the three pieces of tube so as to unite the unattached teeth to the plate itself, it gives a tooth working on a hinged joint, which may be turned up entirely while the plate is being dovetailed into position, and may then be closed down. If at the same time a little tongue of gold is soldered to the central tube so as to press on the middle portion of gum, this being a spring will press on and retain the artificial teeth either in a horizontal or vertical position. When the buccal bands are too conspicuous, a very small plate is fitted accurately and reduced to the size of the nearest part of the gap. An ordinary tooth is then taken and backed in the usual manner; two blades are then fitted, one of them soldered to the plate. On the back of the backing of the tooth a piece of small gold tube is soldered, running transversely across the gap, one end of the gap being closed by the plate and the other end open. A small slot is now cut parallel to the long axis of the tube, a piece of wire is then soldered in such a position as to be able to travel outward and inward. Now, if a small piece of open spiral spring is thrust into the tube before putting the wire in its place, the spiral spring will tend to throw the band outward toward the tooth. The objection may be made that the pressure of the spring on the natural teeth will loosen or displace them, but observation for a considerable time shows this does not happen, because of the weakness of the spring.

Dental Record.

A pivot tooth which, for durability, I consider second to none, is made by using silver for pivot and backing, and soldering with silver solder, and setting with cement mixed thin and amalgam soft, about equal parts, and finishing the part exposed to fluids of the mouth with amalgam only. The amalgam unites with silver only sufficient to make it all like one piece of metal, while the cement setting quickly avoids any danger of displacement of the tooth.

Domestic Journal.

OXIPHOSPHATE AS AN ADHESIVE MEDIUM.

J. C. St. John, D.D.S., Minneapolis, Minn.

In the use of any filling material, a careful manipulation and adaptation of it to the surfaces over which it is to be placed is a necessity. The more perfectly this is accomplished, the better will be the result. This is especially true of metals. Dr. Chas. P. Pruyn, of Chicago, in discussing a paper before Section Six, of the World's Columbian Dental Congress, said that if one would procure a piece of glass tubing and cut it into small sections, plug up one end of each and cover the surface with paper, so that it would be impossible to look through the glass while operating, fill each one carefully, as we would a cavity, we should find, on removing the paper, the conceit all taken out of him, as the supposed perfect adaptation to the walls would be quite the reverse of his expectations. It is true, a smooth-surfaced glass tube would be more difficult to adapt amalgam to than it would if there were grooves or pits here and there, in which a little amalgam would lodge and thus prevent the mass from slipping over the surface, instead of remaining where it was first placed. The close adaptation to the smooth surface must be gained by wedging the material in against it with force, as there is no adhesion between such a wall and the metal, and the more force applied, the more perfect will be the connection. If we had an adhesive amalgam which would adhere to any smooth surface where it was once placed, then the filling of a smooth glass tube would be easy, and the surface could easily be made to appear perfect, even though the body of the filling was not carefully packed, but we have not. I am prepared to demonstrate the fact, however, that amalgam can be adapted to the walls of a cavity by a method which insures adhesion between the two substances.

The attraction of cohesion takes place between the parts of the same substances, and must not be confounded with that of adhesion, which is the attraction of different substances to one another. It is important that this distinction be borne in mind, for in almost all cases, the cohesion between the particles of the cement is much less than the adhesion of the cement to other bodies; and if torn apart, the connection gives away, not by loosening of the adhesion, but by the layer of cement *splitting down the center*.

Hence the important rule, that the less cement in a joint the stronger it is. Domestic manipulators usually reverse this by allowing as much cement as possible remain in the joint, which is therefore, necessarily a weak one. A thick, nearly solid cement

which cannot be pressed out of the joint is always inferior to a thinner one of which merely a connecting film remains between the united surfaces. Then, to secure the greatest amount of adhesion between the walls of a cavity and any metal, we must use a cement; understanding the most desirable qualities for that to possess, we mix good oxiphosphate cement very thin. The amount of cement to be left in the cavity is usually small; so that it is seldom necessary to carry but a small amount to the most accessible wall. It is scraped off of the instrument at the margin of the cavity. No particular attempt is at this time made to spread it over the walls, as this is not always easy to do, and much valuable time will be lost. Enough amalgam to make a thin layer all over the walls and of the right consistency to permit its being easily and perfectly adapted to them is then placed in the cement, quickly forcing the cement ahead of it, all over the walls of the cavity till they are completely covered. It is to be pressed home with as much force as permissible. Any surplus of cement will, after this treatment, show itself at the margins.

We thus insure a perfect metal contact of the filling at all margins. It is simply necessary to carry a properly shaped excavator around these margins, and remove both the metal and cement at the enamel edge of the cavity.

It will be found that this layer of amalgam so adapted will remain where first placed, and the remainder of the filling may be quickly completed.

I do not now use cement thick and in large quantities in large cavities, but allow it to harden before covering with metal. I have gradually worked my way through the process of introducing the amalgam in a thick mix of cement before it became hard, trunnioning it into it, as it were, or working the first piece of amalgam into the cement till the two were well mixed together, up to the method herein presented. I use it everywhere, in "pin-head" cavities as well as in very large ones; against frail, thin walls; in restorations and overcappings.

Moisture being kept from the amalgam it does not tarnish, at the same time sufficient cement remains against the walls to prevent any metallic color being noticed through the thinnest wall.

Review.

Some American dentists have, by their abominable methods, brought reproach on American dentistry in Europe. We need not, however, believe that to be the reason European nations are excluding Americans from registration. There is a more potent reason. [For "*potent*" read "*pocket*."] *Western.*

LOCAL ANESTHESIA.

Dr. Hewitt, of Chicago: The dentist who will day after day place his bur on sensitive dentine, producing pain severer than that of the surgeon's knife in laparotomy, and continue to do so day after day, when within his grasp lies that which will obtund the pain and free the patient from fear, is brutish. I advocate the use of cocain daily in every dental office. Every time that you pass a gilling twine around a tooth to carry the rubber-dam up high enough to pass the cavities, you inflict pain. You have no right to do that. Whenever you put a rubber-dam clamp on the tooth without first obtunding the sensitive dentine, you are negligent of the first duty of the dentist to his patrons.

There are ways in which burring sensitive dentine may be made painless in cutting down on to the live pulp; in amputating the crown of the live tooth; in amputating exostosis of the jaw; in amputating a tumor that may be situated on the tongue; in performing any operation on the mouth with the patient perfectly conscious, able to open his mouth on request; to spit out blood when it is required, and yet absolutely without pain.

I hold in my hands a little vial that contains what I have named, "Compound Cocain Pigment." I never allow myself to apply the gilling twine to the teeth of my patients before applying this. I have made what some of you may call a shot-gun prescription. There are eight ingredients, as follows:

Atropin, one-tenth of a grain.

I use this for the same reason that you give morphin as an antecedent, to guard against the toxic effects of the cocain.

Stropanthin, one-fifth of a grain.

That is the best known heart-*tonic* in existence.

Hydrochlorate of cocain, one hundred and twenty grains.
(Always procure it in clean-cut, rhomboidal crystals.)

Hydrate of naphthol, ten grains.

This is antiseptic, I think, in the fullest acceptation of the term. I use it constantly to sterilize my instruments as the most convenient one that can be used.

Oil of cloves, two drams.

Chloroform, two drams.

Oil of cassia, two drams.

Glycerin, one dram.

Oil of cloves and the oil of cinnamon are of themselves largely anesthetic. The glycerin is simply a solvent to hold in solution the one hundred and twenty grains of hydrate of cocain together with the oils of the mixture.

I have heard it remarked that a solution of cocain cannot be maintained after a day or two, it precipitates and deteriorates. If you will incorporate glycerin with your watery solution, you obviate that difficulty. There is a solution of cocain in my office that is now six months old, that is as efficacious to-day as it was when made. I simply made it in boiling water, adding a little glycerin, and it holds it in solution perfectly if the water is free from impurities. I recommend this preparation to you with the greatest confidence.

Cosmos.

It is not bacteria that make trouble in the human system. Put bacteria of any kind into the living, healthy tissue, and they will perish as quickly as they will in any of the antiseptics or germicides. It is only the dead tissue that forms food for them. When we get blood-poisoning into the system, it is from their products. I am not giving anything new; I am simply calling your attention to facts. If you will perform a surgical operation of any kind, and will be sure to leave no *débris* there, if you will bring the surface close together, I will take all chances for the flourishing of bacteria. I think the use of antiseptics or germicides is very much over-estimated. When the use of bichlorid of mercury gives such widely-different results in the hands of different men, there is something that is not comprehended and not used rightly; there is some fact not yet discovered, and within the last fifteen years the disuse of germicides has been growing, and many of the most eminent surgeons are to-day doing their operations without the antiseptic precaution that Lister first advocated.

It has been proved by a long series of experiments that a solution strong enough to destroy the germs will be strong enough to exceedingly injure the delicate tissues on which we operate. Just bear in mind that thoroughness, carefulness and cleanliness are of more importance than the antiseptic solution that is used, and that the operation which is clean fulfills the essential principles that are required.

Dr. Fillebrown, in *International*.

A REMEDY FOR THE AFTER-PAINS OF TEETH-EXTRACTION.—

A potent and reliable remedy for the immediate after-pains of teeth-extraction, is amyl nitrit, the patient to inhale the preparation about three or four seconds, and then to sit still in the chair for about five minutes, or till the amyl nitrit has spent its primary force. The remedy should be kept in every office, dental and medical, where anesthetics are used. A single drop of nitro-glycerin, one per cent solution, in half a glass of cold water, is even

better than amyl nitrit, and more lasting in its effects. Both remedies are of marvelous benefit in neuralgias, and either will often cure the bad headache following dental operations. In angina pectoris, one of the most dreadful of all cardiac affections, nitroglycerin is almost a specific in relieving pain, though not curative. Intense fear, such as is exhibited by nervous patients in visiting a dentist for tooth-extraction, will sometimes bring on an attack of angina pectoris in patients with weak hearts; hence it behooves the dental surgeon in full practice to be prepared for emergencies of all kinds, and to be able to cope with them successfully when he meets them.

Edward H. Bowne, M. D., Kingston, N. J., in Cosmos.

DECAY OF TEETH COINCIDENT WITH ADVANCED CIVILIZATION.

There is reason to apprehend that unless some cataclysm occurs to arrest the progress of civilization, our descendants will be as toothless as Europtolemus, King of Cyprus, described by the historian Pliny as reduced to masticate his food with a structure of solid bone, in lieu of teeth. This, at any rate, is the inference to be deduced from the statistics recently published by order of the British Parliament, demonstrating the alarming small number of cases of sound dentition among the English. Of 4,000 children attending the London public schools, there were only 707 who had sound teeth; while during a period of three months 506 recruits were rejected by the medical department of the army for purely dental reasons. Of course, part of this state of affairs is due to neglect of digestion, and of the teeth themselves, a fact demonstrated by the statement that of all the girls who entered domestic service from the London public schools last year, five-sixths had never even heard of such a thing as a toothbrush—an assertion that has led the educational authorities to institute in many of the metropolitan schools what is now known as “toothbrush drill!” Decay of teeth has always attended the advance of civilization, and each barbaric invasion has been followed by a recovery of sound teeth in the Old World. Under the circumstances, it might be worth while to consider whether the repeal of the Geary law and the opening up of the United States to a Pacific invasion on the part of the Chinese, might not go far to improve the American jaw. For, according to medical experts, ours is in an immeasurably worse condition than that of the English, a fact probably due to our superior civilization.

New York Tribune.

ANTISEPTIC DENTISTRY.

Garrett Newkirk, M.D., Chicago, Ill., and Discussion in Illinois Society.

The subject assigned me by the Executive Committee, for a paper to be read at this meeting, is one of great interest and importance. It is also a question of such magnitude that it cannot be treated exhaustively in a single article of reasonable length.

It shall be my purpose to give briefly some of the reasons why we should, and how we may, apply the principles of antiseptics to every-day office practice.

What do we mean by the term antiseptic?

It is—anti, against—against the septic.

We must learn, then, first, what we mean by the term septic in general, and as applied to dentistry in particular.

In the older dictionaries the term stood for whatever promoted putrefaction. The antiseptic, therefore, was that which should prevent or retard putrefaction. For example, to give the most familiar illustration—moderate heat was septic; extreme heat or cold antiseptic.

The attempt to make fine distinctions between antiseptics and disinfection has caused confusion. In practice, the two are so closely associated they scarcely bear separation, as I think will appear from considerations following:

As I understand it, to use the plainest possible English, sepsis is *poisoning*, by anything which is of the nature of an organic ferment, or the product of such ferment.

Poisoning by any inorganic substance, such as nitric acid or arsenic, or an active principle of vegetable origin, like strychnin or aconite or opium, does not come within the meaning of the term. They are poisons, but not septic; their action is chemical or irritative. They call for antidotes, but are not opposed by antiseptics. Their action is limited by terms of quantity. They may act on certain nerve centers very actively, but if not sufficient to produce paralysis or death, their force is spent; their effects pass. They are not *living* forces; they possess within themselves no multiplying power. They do not increase. True septic agents, on the other hand, do have this power of indefinite, and often very rapid, reproduction and multiplication. They are themselves alive within the living. They are not limited by laws of chemistry, or by rules of quantity, but by *laws of life*—by conditions favorable or unfavorable to reproduction. A septic agent is simply that which contains the germ, the seed, the spore, the reproductive cell of a low

form of life, that with conditions favorable to itself is inimical and destructive to that belonging to another and higher form of life.

The act of introduction is *infection*. *Infectious matter* is *septic matter*. Disinfection is the act of destroying infectious or septic matter.

Antisepsis is to prevent—is against sepsis. It includes necessarily disinfection. The latter is the minor term.

Infection is done variously, by whatever means the septic material is brought into living contact with the body which it poisons. The small-pox patient has probably been infected through the agency of the air, but he may have been inoculated through the skin. The scarlet fever and the measles patients have been infected usually by the road of the lungs, the typhoid fever victim by his alimentary canal.

The milkmaids, whose immunity from small-pox first caught the observation of Jenner, had been infected with vaccina through abrasions on their hands.

By virtue of this wonderful discovery, the people of the civilized world to-day are infected with the same matter introduced at the point of the surgeon's lance.

It is simply voluntary and intelligent infection with one less dangerous virus (an attenuated virus it may be of the same sort) to prevent another infection of deadly fatality.

But mark you, what the surgeon does designedly with the matter of vaccina, he may do unintentionally with the germs of septicemia or the virus of syphilis.

The one condition of infection is this, that the septic poison, the seed, shall be in some manner brought to the fluids of the body—blood, lymph, serum, protoplasm—soil in which it may grow and reproduce its kind.

I was somewhat surprised a year ago to hear a venerable and highly respected member of the dental profession antagonize the modern ideas of disinfection, in this wise—as I remember, he said: "We drink at fountains from cups which have passed from mouth to mouth, and have not been disinfected. We go to hotels and use forks which have been in the mouths of we know not whom; we sit in seats in railroad cars that may be covered with germs; we ride in crowded street cars laden with the breaths of many occupants—we do all this with comparative immunity. Why then should we be so extremely careful beyond ordinary washing of our dental instruments?"

I say I was surprised because such an argument shows plainly that his thinking had never been thorough enough to go to the core of the subject.

The alligator in the Florida swamps is covered with scales for his protection. So is man. The cuticle is no more a part of living tissue than the scales of the alligator. Ordinary agents of attack are repelled and fall harmless from either. A germ to infect must penetrate within this coat of mail. The same is true largely of the mucous membrane. The man is not poisoned because poisons are within his mouth. They are not necessarily within his body because they are in his stomach or intestine.

Many deadly agents are destroyed by digestion, or passed on without digestion or absorption. To every normally protected surface they are innocuous. If there is no breach in the wall, the enemy besieges in vain. But woe to the surface abraded, the spot unprotected by nature's usual armor. A perfectly whole man might be bathed in the infectious matter of vaccina; there might be a spoonful in his mouth, which could even be swallowed without infection; and yet an amount, so small that it could not be seen, of the same matter introduced on the point of a needle within a living cell would inoculate as certainly as that two and two make four.

The surgeon may open a great abscess; he may perform a laparotomy, where his hands are bathed in septic matter, and no harm follow to him; but if there be anywhere a *broken* surface, even a pin scratch, he is in imminent danger. Woe to him, if with point of infected knife or needle he touches his own blood. His life may pay the forfeit, or disease may scourge him from the crown of his head to the sole of his foot.

The ordinary condition of the cup or glass at the well or fountain is that of smoothness. It is not likely to catch and hold on its edge infectious or other matter. It is frequently washed, and its coolness is unfavorable to the growth of organisms. But if there were on the edge of the cup a ragged point of tin; if that point should by any possibility become infected with septic germs from the mouth of a drinker, it might inoculate by scratching the lip of another. It is within the range of possibility that such things have taken place.

Forks and spoons are of smooth metal. They are not liable to infection, and they often pass through the best possible condition for disinfection, namely, boiling water. Furthermore, all food well cooked, and all drinks of boiled water, have been disinfected by heat.

As to the argument from the experience of those who ride in crowded street cars and breathe atmospheric "hash," it is probably true that many are infected thereby, so far as infection may be communicated through respiration.

If the integrity of the epithelial covering of the mucous air passages be not perfect, the individual takes his risk of infection by any poison to which he is susceptible, and that is so transmissible. Nevertheless, his risk is infinitely smaller than that of the surgeon who pricks his own skin, or that of his patient, whom he inoculates with the infected instrument.

Let us further illustrate. Here is a person in whose mouth there is a chronic alveolar abscess, or an alveolar ulceration with pyorrhea. Pus is daily discharged and mingled with the fluids of the mouth. More or less for months or years it is mixed with food and drink, and swallowed. It may be at times of most virulent character, yet the individual is not consciously harmed thereby. At the point of disease nature has made a wall, a limit between the living and the dead. The living may pass to the dead, but the dead may not come into the living. The daily swallowed infectious matter is digested and destroyed. There may not be absolute immunity, though the danger is comparatively slight. But mark you, let a point of steel but touch this infectious matter and then be carried but one inch *in the same mouth*, or to another mouth, with puncture, and there may follow a train of dire results. There may be extensive ulceration, local or general blood poisoning; there may be boils, carbuncles, or pulmonary, hepatic, or abdominal abscess, and not impossibly, death. "*Behold, what great matter a little fire kindleth!*" There was not more comparative potency in Mother O'Leary's lamp and the straw in Mother O'Leary's barn, which burned Chicago, than there is in the microscopic germ of septicemia or syphilis in touch with their fuels.

A young man of eighteen years, brother of one of my patients, applied to a surgeon for a slight operation on his foot, and had the misfortune to be inoculated with an infected bistoury. Abscesses followed in the lungs and elsewhere, and after suffering for months, and undergoing several surgical operations, with no end of anxiety on the part of his family, he died.

And all this loss and grief were suffered and borne because a man was ignorant or lazy or careless, and failed to disinfect one little instrument. If he now appreciates the truth, one would think his peace of mind would be gone forever. An experience like this would cloud the sky of a lifetime. Where could be the possible compensation or consoling thought to the surgeon who had inoculated a patient with the virus of syphilis? As I understand, it was claimed by the first surgeon in this case that "*Erysipelas had set in.*" We used to hear that expression frequently. Have you noted that it has quite fallen out of the language in these days of antiseptic surgery? It was often merely a term of convenience, to

cover unexplainable happenings which we know now were of septic poisoning.

That which holds true of the general surgeon is applicable to the dentist. *He uses a greater number of instruments liable to be infected, in close proximity to territory favorable for infection, than any other man on earth.* Every instrument which enters a carious tooth is likely to be infected by one or more of the agents or products of decay. A smooth excavator may not be, or if it is, may be readily cleansed, but a bur with its many grooves is certain to be, and is not easily cleansed. One of the most, if not *the* most dangerous instrument for infection is the bur when allowed to slip from the cavity and make a punctured wound of the soft parts.

Let me here remind you that of all wounds the puncture is most to be dreaded.

Ordinarily nature protects herself from inoculation by an instantaneous flow of blood, which washes away all foreign matter, or mayhap imprisons it within a clot, but the punctured wound defeats her efforts.

The hypodermic syringe is a device to secure absorption by means of a puncture through which nothing may return.

The penetration of the rusty nail into the foot of the boy—the wound by the septic tine of a stable fork, as sources of tetanus, are examples familiar to common experience.

The chance of making a punctured wound with an infected bur, adds another reason for the use of rubber-dam in preparing cavities. How often does the dam ward the bur from contact with soft tissues, or, failing to do this completely, removes the principal part of foreign matter adherent thereto—just as cloth or leather wipes the tooth of the rabid dog or the fang of the rattlesnake, so greatly diminishing the chances of inoculation.

Forcep blades are especially liable to become septic, and remain so, first, because they are used so often on teeth diseased and in mouths diseased; and secondly, because of the roughened surfaces of their jaws. They are especially dangerous because they will be applied to other teeth in other mouths, and crowded down beneath the gums. They would doubtless infect oftener were it not that the parts wounded by them are highly vascular and usually bleed very freely. Nevertheless, given a forcep touched with the germs of pyorrhea, septicemia or syphilis—possibly other poisons of which we are as yet ignorant, how easily might any of these be transmitted from one patient to another.

Of such transmission there are many recorded instances, and little doubt that the unrecorded, if known, would far outnumber those.

In relation to possible infection, rubber-dam clamps may be classed with forceps. Whatever is about the necks of teeth adheres to the clamp, and becoming dry is hard to remove. It may be doubted whether one in fifty of the clamps used by us are kept always surgically clean. As another possible agent, we may not overlook the rubber-dam itself, the edges of which, forced beneath the gums, are sure to carry away some of the adherent secretions of the part, and rubber is particularly hard to disinfect. The passage of rubber-dam from mouth to mouth is one economy certainly that is scarcely "penny wise" while it may be many pounds foolish.

However, as a means of preventing infection by all other means, there is nothing to compare with it or take the place of a piece of clean rubber-dam.

We must remember, too, that intelligent people are thinking of these things, and will continue to think more and more. They observe our methods often more closely than we suppose.

I have purposely omitted so far any mention of the broach and the aseptic management of pulpless teeth, or of teeth the pulps of which are being devitalized, because these special subjects have been of late pretty thoroughly treated and brought to the attention of every intelligent reader of dental literature. I have sought rather to keep in view the surgical principles involved within the whole range of practice, and lead up to certain questions which I wish to ask, and would like everyone to ask himself.

Are we practicing dentistry antiseptically?

There are many, no doubt, who are well informed as to the danger of sepsis, and who realize in theory the necessity of antiseptics, but from lack of a proper system, do not carry out their ideas practically. In order to do this there are required certain special arrangements and conveniences, together with scrupulously careful attention to details. There must be also careful instruction of assistants, and keen oversight that orders are obeyed.

The dentist here may get valuable hints from the general surgeon. How does he go about operating with a view to prevent infection of his patient? First, the surfaces near the part to be operated on are thoroughly cleansed with water and soap, followed by alcohol, and possibly the bichlorid solution. The hands of the operator and his assistants are likewise cleansed. Their coats are laid aside, and other clothing covered with clean gowns. The instruments have been made aseptic and are laid on clean napkins. The water to be used has been boiled, and sponges are sterilized. The operation throughout has in view the avoidance of any possible introduction of foreign matter, and the final dressing of the parts is strictly antiseptic.

Should the dentist be any less careful as to surgical cleanliness as to himself and his instruments; and should he not also cleanse the mouths, and especially the teeth, before he proceeds to further operations?

As before said the dentist must have special arrangements and conveniences.

If water pressure be available, the fountain cuspidor. If not, then one nickel-plated, to be cleansed after each patient's use, kept partly filled with water, and *daily scalded*.

Hot water always ready for use on instruments, and for cleansing the hands of the operator. The hands cannot be so thoroughly cleansed with cold water as with warm.

An abundant supply of towels and napkins. There should always be a clean napkin on the bracket on which are laid the instruments, and this should be changed often. It is my habit to buy plain towels, one of which will make two napkins cut to fit the bracket. I take pains to mention this, because I have often observed dentists using merely the cloth cover of the bracket which had become stained and saturated till it was a sight to behold if not to admire. One could scarcely imagine anything better calculated to promote surgical *uncleanliness*.

An indispensable convenience to me for purposes of cleanliness consists in the use of three or four inch squares of bleached muslin, such as one may buy for five or six cents per yard. My assistant keeps a sufficient number of these prepared, and I should scarcely know how to keep house without them.

Am I removing tartar, or treating a case of pyorrhea, one of these squares is always in my left hand, serving to hold the lip, and when the instrument needs wiping it is used for that purpose, and consigned to the waste basket and the fire. I use them for the wiping of burs and excavators, for stripping the soiled cotton from broaches when cleansing pulp canals, for absorbing blood, etc., for laying hold of loose pieces of amalgam or tartar in the mouth, for receiving the tooth just extracted, for wiping the mouth mirror or the hand glass, for use with a little alcohol or chloroform to cleanse the points of the pliers when gummed with sandarac, for removing dirt from the engine hand-piece, etc.

Infinitely better, it seems to me, to use this inexpensive muslin, which may be at once consigned to destruction, than to depend on the heavier, less convenient napkin, that accumulates filth on filth, to be carefully saved for the washtub. It is the rule now, both in surgery and medicine, to dispose of all filth and products of disease by fire rather than the laundry.

A great convenience, one that was suggested to me some

years ago by Dr. Harlan, consists in a number of small cups or jars for holding burs. One is able by this means to keep them assorted and only use those which are clean. As a rule, when a bur has been used once or twice its glory has departed, and it should go at once into the waste, or a convenient box kept for those which may be worth resharpening. On the bracket, too, should be a receptacle for burs which have just been used and one may wish to use again after they have been cleansed and disinfected.

All burs when received, either new or resharpened, should be given a coat of some disinfectant oil, for insurance against both rust and infection, and the rule applies equally to excavators, scalers, forceps, clamps, etc., which after cleaning are put in place to await use.

A simple and convenient device for the use of heat to clean instruments is the following: Take a small tin or copper teakettle, having a straight spout. Have the tinner attach to the lid of the kettle two or three tubes an inch in diameter and long enough to reach nearly to the bottom. These closed at the bottom and opening outward, may be used for dry heat or oil, while all the long instruments may be dipped in boiling water through the spout.

Any sort of small burner will keep the water at the boiling point with but little trouble or expense.

Antiseptic dentistry, or antiseptic anything, means *cleanliness*. But how can we expect surgical cleanliness if we fail to appreciate the ordinary cleanliness reached by the simplest means. By hot water and soap, the dentist himself, his coat, his hands, and all the belongings of the chair, and bracket, may be clean. Then, with a little care surgical cleanliness is added, and antisepsis is complete. I leave the subject at this point, hoping I have developed sufficient interest to cause a free discussion.

DISCUSSION.

Dr. J. G. Reid: It has been stated that if dentists take an instrument and dip it into some antiseptic agent, it will destroy germs. It will not do it. We may take the strongest agent we have, for instance, bichlorid of mercury, dip an instrument into it, then wipe it, and we would have to do this at once, because the solution would affect the instrument, but at the same time this would not destroy septic matter. I speak of this as an illustration. It requires some little time for the action of these agents. If we expect to destroy diseased germs by medicinal agents, we have to keep our instruments in them continually. That is not always a convenient thing to do, but it is the proper thing to do. Water will answer the same purpose exactly. We may take a

broach from a pulp canal, use it for awhile, lay it down on the operating table, let it remain five minutes and it becomes dry; dip it into some water, wipe it off, and then put it away. A good many call that cleanliness. We might as well have laid the instrument aside as used originally as to have done that. We should go beyond what the essayist has recommended.

Dr. G. V. Black: A boy rubbed his heel with his boot. The parents noticed the next morning that the boy was in trouble and sent for a physician, who lived some ten miles distant. The physician, after examining the boy, came to my office and related the case to me. It seemed so serious that no time was lost. Instruments were taken for amputation, but too late. The boy died some hours after of gangrene of the most virulent type.

Dr. Brophy: How long did the trouble exist?

Dr. Black: He died the same night. This is, of course, a remarkable instance, occurring in the country as it did.

A child that had a slight burn on the wrist was crawling about on the floor. The sore had been partially wrapped, but became uncovered, and the child got erysipelas. The child was sick six weeks, the erysipelas passed over the whole body, except a portion of the head, even down to the ends of the toes.

A child had fallen, striking the chin against the doorstep, crushing the teeth together with great force. Alveolar abscess occurred, which was not recognized by the physician. Extensive necrosis of the jaw followed in this case. I had to remove much bone, and the crypts of all permanent teeth from the lateral incisor back on the one side, and a number of them, not so many, on the other. The first bicuspid on the other side was retained, but everything back of that was removed. Metastatic abscesses opened on the sides of the face and neck with not a prospect of recovery. This may be set down as a case of infection.

A young lady, from whom was removed a considerable osteoma of the lower jaw, went home three weeks after the operation. The wound had not quite healed. Two weeks later she returned with septicemia, with a temperature of 102°. Metastatic abscesses occurred in the angles of the neck, as in the last case. Two or three abscesses occurred in the floor of the mouth. The swelling of the throat and neck in this case was so serious as to threaten suffocation. I could collect many cases of infection by dental instruments.

A minister who went to a barber shop to get shaved, had a beautiful face on him afterward. He was six weeks out of the pulpit before he found out what was the matter. There was considerable irritation of the skin; in other words, it was a very serious case of barber's itch.

Dr. T. L. Gilmer: I wish to show you a receptacle which I have used for a number of months for the purpose of keeping broaches in an aseptic condition. I am associated in an office with a physician, and some months ago he purchased some wooden bottles for dispensing tablets, and I conceived the idea that if I were to thoroughly saturate these wooden bottles with the oil of cassia, and after thoroughly cleansing my broaches, place the broaches in them, I might be able to keep them in a better condition than if they were kept in my operating case or in a glass vial. You will find broaches in each of these bottles, and if they are taken out you will discover they give off a strong odor of oil of cassia. Perhaps they are not thoroughly aseptic, but they much more nearly approach it than they would be if not subjected to this diffusive medicament.

Dr. C. A. Kitchen: In connection with the remarks of Dr. Black, I will speak of a case that occurred in Rockford in which Dr. Taggart lost his life by having a slight scratch in performing an operation. Dr. Fitch nearly lost his life by a similar occurrence.

Dr. T. W. Brophy: In the city of Chicago a few years ago a brilliant young physician lost his life in the same manner as Dr. Taggart, of Rockford. The gentleman was Dr. Hibbard, son of one of our most prominent citizens. All efforts to save him were unavailing.

There is one practical lesson that may be learned from this paper with reference to the use of broaches. The essayist did not speak of it in particular, and that is, a great many operators are of the opinion that if they make use of a broach which is thoroughly disinfected and is truly aseptic, it is sufficient. Let us take, for instance, the upper molar tooth, the pulp of which has died and the contents are of such a character as to infect the broach. We introduce a broach, that has been thoroughly sterilized, into one of those canals, and then possibly carry it into another canal in which the pulp is not thoroughly devitalized. We meet with many such cases. The palatal root is devitalized, one of the buccal roots is devitalized, but the other buccal root is not. By this procedure we may infect the part so as to lead to trouble. I have seen cases of infection that have been a great source of trouble. It teaches us the lesson that the operator should use at least three broaches, one for each canal, in operating on teeth which have three roots, each broach sterilized, and by so doing we may proceed with the least danger of carrying infection from one canal to another. The same reason exists why each instrument should be sterilized when using them in the treatment of teeth having two or more canals as there should be in carrying them from one patient to another.

Dr. J. G. Harper: The bottles mentioned may be too expensive to keep burs and other instruments in. Very little of the oil of cassia would disinfect or kill most any germ if shut up in a room with it.

Dr. A. W. Harlan: The paper is in the right direction and is well timed, and if I can say anything to emphasize it I will do so. The question of treating cases antiseptically and of treating everything that you handle antiseptically is growing in importance. Very soon I presume every dentist in the United States—in fact, in the civilized world—will try not only to use disinfected instruments, but will try to make every operation as nearly aseptic as possible. The question of the disinfection of instruments is really of more importance to the practicing dentist than some of the minor questions, as the care of napkins, rubber-dam, cuspidor, etc. Of course, an unclean cuspidor is a nauseous thing to look at and smell of, but the patient does not take its contents, and does not handle it, so that he does not become infected in that way. It is in the use of unclean forceps, clamps, knives, burs, and broaches that the greatest danger lies. The ordinary barbed broaches are so cheap that when I use one I throw it away, that is the cheapest way to disinfect that kind of broach. The smaller broaches are easily disinfected, either by heat or hot water to begin with, and then soaking them in some solution. What solution? I prefer a solution that is not odorous, one that can be made with water in preference to an oil for that purpose. For all the usual purposes of sterilizing instruments a ten per cent solution of boro-glycerin in water will disinfect your forceps, broaches, and cutting instruments, and will leave them without a bad smell. That is one solution that may be used. A saturated solution of the silico-fluorid of sodium, which is a cheap drug, can be used to disinfect instruments after they have been cleaned, and there is no odor or taste to it. I use both of them. I make these solutions instantaneously on the desk from time to time. Of course, there are a great many different agents that may be used for disinfecting instruments, but I prefer to limit them to those that are soluble in water.

I know of a good many cases of infection of patients from the use of unclean instruments, and especially the kind of infection that Dr. Brophy has spoken of, where there is a portion of the pulp left in a tooth and other portions have been removed from the other roots. This will explain to you why we have an alveolar abscess following the introduction of a clean instrument. I have under my care at the present time one of the worst cases of blood poisoning I ever saw, but I am happy to state that the patient is out of danger. This was due to the slow formation of an abscess from one of

the buccal roots of a molar tooth that had been filled for more than ten years. The palatal root had been filled, one buccal root was filled and the other was not, and I presume the remains of the pulp were left in, and there was the gradual formation of an abscess; it did not open externally, because it was of such a low grade, and finally the patient had all the symptoms of septicemia. Her husband spoke to me and assured me that his wife had some trouble with her teeth, and I told him to have her come down to my office. She came down, and I realized the danger she was in, and with the prompt cutting in and opening of the abscess, which was very large, though there were no external evidences of it, and the dressing of the interior antiseptically and putting her into the hands of a medical man who treated her constitutionally, in four or five days she was in a very much better condition. But her wrists and all the joints of both hands and jaws, knees and ankles, and toe joints, and pretty nearly every portion of the locomotor apparatus, were so affected that she could hardly move, in addition to the other symptoms of blood poisoning. Strictly speaking, that only belongs to antiseptic dentistry in a degree, but if the remains of the pulp had been removed from that root, and the root had been filled, she would not have had these symptoms and the consequences.

Dr. E. D. Swain: We are ourselves sometimes in danger as well as our patients; also as to how small a quantity of the matter is necessary to make severe trouble.

In preparing for treatment an upper molar similar to that spoken of by Dr. Brophy, and later by Dr. Harlan, with one of the Donaldson broaches, a very fine broach, after using it I laid it down on my table with the point extending over the edge, and in reaching for another instrument, without paying particular attention as to where my hand was going, I barely pricked the joint in my little finger, not sufficient to make it bleed. In a very few hours this joint was badly swollen. The pain was extending up my arm. I spent a sleepless night, and in about thirty-six hours from the time the injury occurred I went to a surgeon, who made extensive cuts in the arm and put me under rigorous treatment. This simply shows that we are liable to infection ourselves.

Dr. Ira B. Crissman: I may be a crank on this subject, a very good subject to be in earnest on; it is one of the greatest importance to us as dentists to remember. The question is, Do we practice what we preach in regard to the disinfection of our instruments and the antiseptic preparations used? Some of us do, others do not. How are septic matters carried? By unclean instruments, careless operators, neglectful assistants. How many dentists in this room clean that little instrument attached to the dental engine,

the bur brush? One bur is used, laid aside, and then another is taken, but are they kept clean? No. The bur is filled with dried decay; how easy to store infectious matter. The first patient on whom the dentist operates may have syphilis, and if the instruments he uses are unclean, and not sterilized and disinfected, infection is liable to follow in operating on other patients. Some dentists neglect to clean their instruments because they are in a hurry, but that is no excuse for a man not properly taking care of his instruments. Necessity forces us oftentimes to be in a hurry. Being in a hurry is no excuse for a man not properly cleansing each instrument. We go from one patient to another, and because we have several patients to attend to in succession, we do not follow out the rule of cleanliness. Here is an example:

A lady came to my office who had previously called on another dentist in Chicago. He invited her into his operating room immediately after dismissing a patient. In looking on his dental tray she saw excavators, broaches, etc., with decayed matter on them. This disgusted her, and she walked out of the office and did not return. She said she would not submit herself to those influences which she knew were wrong; that she would not allow any dentist to use an excavator on her teeth that had been previously used on another patient without being sterilized.

Another case. Before I started for this meeting, a gentleman came into my office and wanted a left upper first molar extracted, I took my forceps and extracted it. After the tooth had been extracted, the gentleman leaned forward to rinse his mouth, and my boy noticed his neck and called my attention to the condition it was in. There were two syphilitic patches on his neck as big as a half dollar. Supposing I had not carefully cleaned and disinfected that instrument, I might have carried syphilis from that patient to the next one operated on.

In regard to keeping ourselves clean. The idea of a man operating with his finger-nails dirty, not washing his hands before attending to each patient, using soiled towels. Is that cleanly? Ask yourselves that question?

Then again, some dentists will use one side of a napkin, turn it over, and then use the other side; in some instances the napkin being covered with blood and stains; soiled and filthy napkins on the head-rest.

I thank Dr. Taggart to this day for the instruction I received while under his care as a student. He swore at me many times for neglecting these things of so great importance, for which I give him credit. (Laughter.) If any man would come into my office and say, "Dr. Crissman, you are not cleanly enough about your

work," or this or that duty was not as it should be performed, I would thank him for it.

Dr. Garrett Newkirk, in closing the discussion, said: I hardly think I could add much to what has been said. Dr. Reid, as I understood him, asserted that boiling water would not disinfect instruments. I think the experiments of Dr. Miller, recently published, show that the introduction of instruments into boiling water for five or six minutes will almost invariably disinfect them. I wish to call attention again to that kettle I mentioned. I had the tinner make two tubes reaching down into the bottom, one of which I use for dry heat and the other for sweet oil impregnated with a little of the oil of cassia or other disinfectant. My assistant puts the instruments into the boiling water, then in the dry chamber, then in the oil, after which they are wiped and laid away.

I was very glad to hear the report of cases by Dr. Black and others which emphasized the importance of this subject; also, that by Dr. Swain showing how a very minute puncture with a fine broach, which did not even draw blood, had produced such a serious effect on himself. I was glad to hear him call the attention of the practitioner to the danger to which he is exposed.

Dr. Harlan criticised me somewhat because I paid so much attention to things of minor importance, such as clean cuspidors and napkins. I assume that the cultivation of cleanly habits is an important thing in relation to this subject. If he is careless with reference to these things, he will quite surely be careless with reference to disinfection. One is *cleanliness*, and the other is simply *surgical cleanliness*, and we cannot cultivate too much the habit of cleanliness in every respect. The little bottles shown by Dr. Gilmer will answer an excellent purpose for keeping our burs and broaches. I cannot imagine how broaches could be otherwise than aseptic if cleaned beforehand and kept in such a box.

I was glad the attention of the society was called to this fact, that though a broach be perfectly aseptic, if it be passed through a root of a tooth it immediately becomes septic and will infect the tissues beyond if it is permitted to touch them, or it may do so without touching them, providing matter is forced beyond the apex of the root, and it may be well to emphasize the fact right here, which has been so often brought forth, that we cannot be too careful about introducing any instrument into the root of a tooth till we have first thoroughly treated it for a number of days so that its contents are disinfected.

Subscribed?

PRACTICAL POINTS.

Mrs. J. M. Walker, Bay St. Louis, Miss.

TO CHECK EROSION.—Rinse the mouth thoroughly, twice a day, with alcohol, till a stinging, burning sensation is produced. The action of the alcohol on the mucous glands changes the character of the secretions, diminishing and finally arresting erosion.

Dr. Merriam.

PULP DEVITALIZATION.—If the first application of arsenic fails to devitalize the entire pulp, remove the devitalized portion and apply a minute quantity of the following paste: Arsenic 1 part, iodoform 10 parts, moistened with campho-phenique.

Dr. Chas. Harker.

PULP PROTECTION BY CAVITY LINING.—Place a small quantity of oxisulphate over the bottom of the cavity, allowing a few moments to set; then fill with oxiphosphate as usual. The oxisulphate is non-irritating to sensitive dentine or nearly-exposed pulp.

Dr. G. F. Cheney.

PROTECTION OF PORCELAIN TEETH IN BRIDGE-WORK.—Coat the teeth with shellac varnish, and place pieces of mica between contiguous porcelain. The shellac carbonizes under the heat of the blow-pipe, giving a protective layer of charcoal next to the porcelain; the mica counteracts expansion and contraction.

Dr. Melotte.

ADAPTATION OF LOGAN CROWN TO BROKEN-OFF INCISOR IN VERY YOUNG PATIENT; UNDEVELOPED ROOT HAVING LARGE OPENING AT APICAL FORAMEN.—Obtain impression of canal, and fit piece of tooth-brush handle smoothly rounded at the end. Set in canal with cement and drill a hole for reception of pin of Logan crown.

Dr. Gaskill.

TO STERILIZE SOFTENED DENTINE LEFT OVER NEARLY EXPOSED PULP.—Dry thoroughly and apply: Carbolic acid 1, oil of cassia 2, and oil of cloves 3 parts. Insert permanent filling at once.

Dr. H. A. Smith.

RETENTION OF LOOSE TEETH (whether from pyorrhea alveolaris, implantation or replantation).—Place over the affected teeth and one firm tooth on each side connected caps made of German silver, gage 33, cemented and burnished into place.

Dr. L. Ottofy.

FILLING CAVITIES IN DEVITALIZED POSTERIOR TEETH WITHOUT REMOVAL OF ROOT CANAL CONTENTS.—Insert in cavity bottom

over mouths of root canals, small tablet composed of equal parts of bichloride of mercury and thymol, crushed and moistened with water. Cover with a layer of tin or gold foil, and fill immediately.

W. D. Miller.

CHEAP CROWNS FOR POSTERIOR TEETH.—Stamp up an aluminum crown (with a "Morrison outfit"). Fill the cusps with amalgam.

Dr. T. P. Hinman.

"Aluminum has the great advantage of not alloying with mercury."

Dr. Mayr.

TO PREVENT RUBBER-DAM FROM SLIPPING ON THE NECK OF TEETH.—Powder with pulverized rosin.

Dr. D. V. Beacock.

PULP DEVITALIZATION.—

White oxid of zinc.....	$\frac{7}{8}$
Crystals hydrochlorate cocain.....	$\frac{1}{8}$
Creosote, q. s. to make a paste.	

After removal, apply tannin dissolved in glycerin or alcohol. There will be no trouble in removing pulp whole, without pain.

Dr. I. B. Crissman.

TO DRY AND ANNEAL SURFACE OF GOLD FILLING REQUIRING "PATCH."—Remove the rubber bulb from a small drop tube, and fill with soft cotton lampwick, drawing a few fibers through the point of the tube. Replace the bulb and draw in sufficient alcohol to fill the miniature lamp. This gives a minute flame, with which, with no discomfort to the patient, the surface of a gold filling (first slightly roughened) may be dried and annealed, so that fresh gold will adhere.

Dr. D. V. Beacock.

It is he who has drunk long and copiously from the fountain of knowledge that is most capable of rendering the highest service to suffering humanity. It is certainly very commendable that some dental colleges have raised the standard of education.

Dr. D. F. Swingel.

Recent studies in bacteriology have not been carried on in the line which the original investigators had laid down. We have recently discovered bugs in everything, and if the conditions of things are such as we are now taught, we would have been permeated with disease and the whole world have been dead long ago. I do not wish to be understood as saying that bacteria does not play an important part in many things, but we have gone to extremes. I am willing to go on record as saying that acid plays a far greater part in causing decay than bacteria, and that the location of decay in the smaller cavities of the teeth is only the indigenous home of bacteria.

Dr. E. S. Chisholm.

HINTS.

We are never too old to learn, and we may sometimes learn from the most unexpected and unpromising sources. *Be teachable*, is an injunction that should follow us from the cradle to the grave, and the wiser we become the more teachable we shall be.

* * *

Search as with a lighted candle for something in advance of your present attainments. Examine everything in your sphere for a hint, search everywhere for something valuable, be conscious of continual improvement. These are the men who make final success.

* * *

Were I a cherry tree I would be discouraged waiting years to bear a few cherries; and, when cherries did come, to have them so quickly picked, leaving me bare for another year. Yet this is the mission of the cherry tree, and it is somewhat the type of *our* mission. We wait and endure much, and struggle hard to bear fruit, and when it comes to perfection it appears as insignificant as a few cherries, but to others it may be timely and invigorating, just the kind of relish to cheer and brighten the lives of many.

* * *

We all see enough, but appropriate too little; we appropriate more than we use, and use more than we make useful. A single good idea reduced to thorough practice is worth more than many ideas tucked away in some chamber of the mind unused. We all know enough to be wise, but knowledge is not wrought into wisdom; we are all wise enough in something to be successful, but that something is not made our all-absorbing life-work. We all work enough, if our work was sufficiently mixed with brains. Observe, digest, concentrate, act!—this is the secret of success.

* * *

Well, young man, you have learned by this time that you can grow weeds much easier than you can good fruit? Weeds grow spontaneously, but good fruit must be cultivated. Only neglect your soil, and weeds come up thick and rank, choking the most valuable crop. Your appearance and character will become neglected and shabby without half trying—you have only to stop keeping them clean. But to be esthetic and of value requires much care. You may turn into a weed yourself in a short time, by simply neglecting your morals and your mind; lay round loose

and learn to smoke and drink beer, and you will soon become seedy, coarse, vulgar and useless—a rank weed, of the very scent of tobacco and stale beer. Tobacco itself is very exhausting to the soil, and these other noxious weeds are sure to be near by to absorb all your goodness.

* * *

Of what use is it to be rich and honored, if not healthy and happy? Yet how often we sacrifice health and happiness for wealth and glory. We make life a continual strife for fame and possessions at the expense of every comfort, imagining that by and by we will rest on our laurels and enjoy ourselves. But after our whirl of work and fret, we are unfitted for either rest or enjoyment, and enter prematurely into old age and decay. We become so habituated to hurry and worry, and the ambition for gain, we cannot shake them off when weakness and infirmities necessitate retirement and rest.

* * *

Some of us would profit by being more quiet, orderly and respectful toward our patients, especially at the chair. We talk too much, bustle about too much, and are too fussy and annoying. Stale jokes may be bearable when they can be answered by repartee; self-importance can be humbled when its victim is free; disagreeable liberties can be resisted when the patient is not gagged,—but though words of remonstrance cannot be uttered, there is sure to be a resentment that will tell against the pocketbook another day. Be quiet and attend to your business; show dignity, deference and reserve; think more of the goodwill of your patient than of your own nonsense, and you will be better appreciated.

* * *

You can generally tell a lazy, careless, slovenly dentist by his lolling. He may think it rests him to throw his weight on his patient. But it is really more tiresome to lean and roll and tumble about, and bend double and make a corkscrew of yourself than to stand up straight to your work like a man.

There is no need of such contortions of the body and twisting of the neck and of almost laying the head in the patient's lap to look up at your work. Bring your patient's head to a proper height to work standing or sitting in an erect position. You will then find yourself much less wearied by your work.

Then, too, especially if your patient is a lady, such conduct is decidedly impolite, indelicate and ungentlemanly. It is offensive. If there is no visible repulsion to such liberties, their future absence prove you have lost profitable patients.

ITEMS.

In 1888 the University of Michigan Dental Department had a colored lady student, whom, I think, is the first on record.

E. R. Johnson.

* * *

A SOLDER FOR ALUMINUM.—The solder is an alloy of aluminum and tin, suitable proportions, being 45 parts tin to 11 parts aluminum. The metals are melted separately, poured together, and then cast into slugs. No flux is required.

Scientific American.

* * *

For the last three years I have used aristol as a dressing for root canals, and have found it very effectual. For filling root canals I use carbonized cotton soaked in shellac varnish, and have yet to meet with a failure. I never fill a canal till all odor is destroyed.

T. A. Mayhew, Conway Springs, Kan.

* * *

TO GUARD AGAINST DARK JOINTS IN VULCANIZING:—Grind the inside of the joint V-shaped, and before packing fill the spaces with pink rubber. This gives a perfect color and is not washed out by the fluids of the mouth like cement.

E. R. Johnson.

[My way is to make a perfect joint and not use very much pressure in closing.—EDITOR.]

* * *

In microcidin, a compound of naphthol and sodium hydrate, we have a germicide and inhibitor of germ growth. It is ten times as powerful as boric acid. In a solution of $\frac{1}{1000}$, which is the strength for general use, it is a most excellent wash where there is a free discharge of pus, and produces no irritation of the mucous membrane.

V. A. Latham.

* * *

The following are the officers of the Southern California Odontological Society: Dr. M. A. Menges, President; Dr. A. P. Hayes, Vice-President; Dr. F. M. Parker, Secretary; Dr. G. A. Millard, Corresponding Secretary; Dr. C. V. Baldwin, Treasurer; Dr. D. R. Wilder, Librarian.

* * *

The following are the officers of the Odontological Society of Chicago: W. V. B. Ames, President; C. H. Johnson, Vice-President; Louis Ottogy, Secretary-Treasurer; C. S. Case, Curator; Board of Censors: P. J. Kester, A. W. Harlan, and J. W. Wassall.

Dr. Frank Abbott, New York City: The only one condition where I think of using any material for devitalizing the pulps of teeth, is where it is impossible to stop pain. I have perhaps in the last fifteen years used arsenic in teeth as many as three or four times—no more.

* * *

We cannot be too careful in passing young men to join our ranks. The dignity of our profession is measured by the intelligence, culture and refinement of our workmen. The time has come when students must show proper qualification. The facilities for a thorough intellectual training are so ample there is no excuse for inefficiency. A diploma must be a guarantee of professional skill.

Dr. D. F. Swingel.

* * *

A celluloid disk placed at the back of any sand-paper disk stiffens it materially and is a great improvement. By holding a smooth burnisher on the smooth polished surface of the celluloid when polishing a gold filling, the disk can be bent and pressed into any uneven surface without destroying it, thus avoiding the trouble and annoyance of changing so frequently. A celluloid disk can be placed between two sand-paper disks back to back and used to advantage.

D. V. Beacock.

* * *

To cut off a tooth, drill directly through it with a small size spear point drill, being careful that the drill comes out on the lingual surface of the tooth at the same distance from the gum as where it entered. Now take the next size larger, drill and enlarge the hole already made, and so on till the tooth is entirely cut off. The end of the root will be left perfectly smooth and ready for the crown. This method does away with the disagreeable jar, noise and slipping which is always complained of by the patient where a bur or facer is used.

Office and Laboratory.

* * *

TESTING GOLD AND SILVER.—Use pure nitric acid. To test: File the metal clean to make sure that you are testing the metal itself and not a plating or covering of any sort. Silver under the action of the acid goes to a peculiar grey color. If brass it will turn green; German silver will do the same; nickel will go black. Gold, pure, 22k. or 18k., will be unaffected, and the acid will stand like water; 15k. will turn very slightly brown if the acid is pressed well in with the bare finger; 12k. will go the same without any pressing in; 9k. goes a decided brown at once.

English Mechanic.

EDITORIAL.

EXCUSES FOR A BAD HABIT.

The *British Journal of Dental Science* gives place to an article in defense of the use of tobacco as an antiseptic in diseases.

The writer says: "Many physicians declare it a prophylactic in times of epidemics." Yet it is a notable fact that epidemics carry off more men than women, though men are the smokers; and in such times physicians advise abstinence from all narcotics and stimulants.

"Waller Cook, of Texas, in 1889, even recommends tobacco smoking as a preventive against tuberculosis." Yet is it not notorious that smokers take this disease as frequently as those who are clean from its use? It does seem as though its poison would kill something, and we have frequent proof that it kills the person, but no proof that it kills the disease. The worst cases of consumption under our notice were developed in the midst of tobacco smoke. We suppose this writer would advise all ladies to become tobacco smokers to prevent consumption; but most physicians advise all consumptives to eschew tobacco.

"In experiments it has been seen that the bacilli of cholera and pneumonia were destroyed within a few minutes by tobacco smoke." What nonsense! Do not tobacco smokers have cholera? Has not tobacco smoke for cholera been tested over and over again, to the disgust of experimentists? If it is only necessary to envelop ourselves in a cloud of tobacco smoke to prevent and cure cholera, then of course that nation of smokers, the Russians, never have the cholera, and of course those inveterate smokers, the Germans, are exempt. It is only the refined ladies of England and America who have the cholera.

But now comes the climax: "Tassinari affirms that smoking tobacco delays caries of the teeth." Now, then, we suppose we shall soon find smoking women as numerous as smoking men, and the occupation of the dentist will be gone. But have smoking

men better teeth than men who keep their mouth clean from these poisonous fumes? We have been a dentist for more than thirty years, and have observed that men and women with a clean mouth have the better teeth. To prevent caries, we should much sooner advise scrubbing the teeth with the mop rag, than with a bolus of tobacco; and certainly the teeth are not preserved by making a smokehouse of the mouth. For the preservation of the teeth who would recommend a quid or a pipe of this noxious weed to their wife or their children? We are not sure but smoking preserves the body as hams submitted to smoke are preserved. We have seen old men so pickled in whiskey and "cured" in tobacco smoke, that they lived on long after they were dead.

SOME dentists never become good gold fillers. They try after a fashion, but "it will not stick." They observe how easily an expert does it, but they can not imitate him. Their fillings will slip out, their best work will not last. It is bound to develop some defect somewhere.

Some time since we were in the office of a celebrated plastic filler when he advocated cement for the front teeth.

"But why not fill them with gold?" inquired the lady.

"The teeth are too frail," was the reply.

"Are they worse than most decayed teeth?"

"No; but in most decayed teeth cement is better, and looks better."

"Will it last as well?"

"Neither is permanent; all fillings need renewing at stated times; and though cement may need renewing oftener, it is a preserver of the teeth where gold is not."

We were astonished. But when, in after years, this dentist's poor gold fillings came under our inspection, we found he was a poor manipulator of gold.

We were in the office of a popular dentist some time since, when the operator said to another dentist:

"Doc, I have filled this small cavity with gold three times

within the last three hours, and the filling will not stick. Let me see how you would operate."

In fifteen minutes it was filled; when the first said:

"Now, will you be offended if I just pick it out to test its hold?"

"No; but you can not pick it out without cutting it out bit by bit."

True enough; repeated trials showed that no ordinary force would remove it."

The difference cannot be easily explained. It was a something in the finger tips that did it. The gold was the same, and the cavity was unchanged. It was wholly in the manipulation.

But though the majority of dentists are poor gold fillers, most may attain skill by *doing their best every time*. The motto with us all should be, *Quality first, then speed*, but quality at all expense of speed or any other consideration. Better have the reputation of being a slow but sure workman than a poor one.

We had a student once who became a good gold filler, but could never hurry at this work, or any other. It was sure to spoil anything he did. As he was forty-five years of age, we despaired of his ever becoming alert and expert enough to attain distinction. But after a few years in his own office he became quite popular, for he gained the reputation of being an excellent dentist—though slow.

Self-confidence is sometimes an evidence of weakness; dogmatic assurance often covers ignorance; and self-conceit is generally a mask for selfishness and shallowness. The strong have doubts, the wise show caution, and the liberal are tolerant.

At our conventions, who are the forward, irrepressible talkers? Are they not often the self-confident who show their ignorance? The thoughtful are more reticent. Who are the most self-asserting, positive men? Are they not frequently bigoted ignoramuses? Fair minded men are modest. Who are the first to volunteer in every controversy? Are they not the self-conceited? Men of thought, culture and large experience take time to reflect.

While we claim our rights, let us not encroach on the rights of others ; while we assert our own convictions, let us respect those of our fellows ; while we try to teach others, let us be teachable. Simplicity of disposition is always admired ; it is gentleness that makes the gentleman ; and receptiveness is sure to increase intelligence.

Some men are never full, because they are ever increasing in their capacity ; they are never satisfied because they see better things on ; they are humble, because what they are is so much beneath what they might have been. What a contrast this with the bombast who is so inflated with wind he has no room for sense ; or the coxcomb who struts about to be seen rather than to see ; or the satisfied dwarf who has no capacity for either sense, or thought or his own *littleness*.

All dentists have observed the deterioration of the teeth during child-bearing. Why is it ? Some say it is because the growth of the child exhausts the vitality of the mother. Some contend it is because of the abnormal activity of the vital processes. It is certainly not because of the mother's condition *per se*, or we should find it more usually prevailing during this condition, whereas it is only seldom. We believe it is generally from the sympathetic activity of the urinary organs producing an excess of uric acid throughout the system. We believe we have almost invariably found this in these sudden attacks on the teeth, without reference to pregnancy. The reason we find it more frequent during pregnancy is because they are more likely to be irritated.

It seems to us those wishing to enter our profession should be required to give three tests of fitness : 1st, theory ; 2d, skill ; and 3d, character. Why make it of importance where, when, or how they get their theory or their practice if it is satisfactory ? But should we not make character also a test ? It would certainly keep out some who are now entering. And would it not improve the profession ? It might also improve some of our Examining Boards, and even purge some of our dental colleges. Read the following for instance :

"The Chicago College of Dental Surgery gave the delegates to the National Association of Dental Faculties an enjoyable coach ride to points of interest in the city, stopping at the famed 'Illinois Club' for punch and cigars. The courtesy was very much appreciated by the delegates." The editor of the *Western Dental Journal* who gives this disgraceful information adds no comment of disapprobation.

AN ABSCESS, AND HOW TO KILL IT.

There is no such thing as an *alveolar* abscess, though the abscess attached to the end of the root of a tooth is so persistently called so. It has no connection with the alveolus either in its origin, location or growth. It is an abnormal, degenerate, fungus enlargement of the dental nerve, with other tissue, just where it formerly entered the tooth, and marks the point between the death of that portion in the tooth and that which leads to the tooth. It is always attached to the apex of the root, and always shows the death of the tooth. It is never attached to the side of the root, and is never a growth from the surface or substance of the alveolus, as some assert. These latter sloughing, corroding, spreading, disintegrating patches are ulcers, not abscesses. They have not vitality, organization, and a circumscribed sack, as an abscess has. An ulcer is death itself, spreading death and dissolution in every direction. An abscess destroys nothing outside of itself, though it remains for years, except by pressure to make room for itself and for a tube for the exit of its manufactured fluid, which is comparatively innocent.

If we can detach this abscess from the point of the root we kill it. It cannot live as a growth of the dental nerve without attachment to the tooth. A mere stick run through the root will kill it. A wire, used by some as a support for an artificial crown, if the point extends beyond the apex, will frequently destroy it. The pointed stick of gutta-percha sometimes thrust in the root as a filling will often be its death by penetrating beyond the apex. Even chloro-percha pumped into the root by cotton on a broach, if forced through the end of the root, will smother it. These means

are unconscious accidents. The best plan is a fine, hook-pointed broach thrust through the apex and twisted to tear the abscess from its attachment to the root. Merely piercing or tearing the sac will generally kill it. The favorite process of the late Dr. Atkinson, when it could not be reached in this way, was to drill through the gum and alveolus to the root, and cut off its extremity. Some tell us if they can fill a root thoroughly to its apex they do not fear an abscess, and if one exists it will undoubtedly die. Yes, because they generally thus force a portion of their filling through the apex, preventing an attachment of the delicate nerve fibers to the apex, or smothering or tearing it off, if already there.

There is still a want of unanimity in treating putrescent pulps, but there is an evident advancement in our knowledge and skill. Many more dead teeth are saved than formerly, and some dentists are notably successful. Isn't it strange that some dentists utterly fail with apparently the same treatment that give others eminent success? It seems a very simple thing with some; with others it is impossible.

"Every one has his hobby," says one confused with his many failures in many methods. But, my dear sir, there are not "so many methods." Perhaps we might include all under two—the use of coagulants and of anti-coagulants. One man will tell you, and he may perhaps be considered of the old school, that there is nothing like carbolic acid and creosote. The very fact that these are coagulants pleases him. Another successful practitioner will aver with Dr. Swift, of New York, "I have long since discarded coagulants; they dam up the tubuli, preventing disinfection and diffusive action. I employ diffusible essential oils, such as eucalyptus, eugenol, oil of cassia, and myrtol, which are very diffusible, carrying a large quantity of oxygen and depositing volatile camphors, which are all powerful in the destruction of septic and infectious matter." This may be considered the new school of practice. The main thing is to be successful, but whichever method is used, if a few can succeed, why not more?

NOTES.

Dr. Richards, of Knoxville, has a set of artificial teeth which were found in an oyster bed on the coast of North Carolina. An oyster had appropriated the teeth, though they did not seem to have been made for him. They did not fit.

* * *

A new porcelain has been obtained by grinding asbestos to a fine powder and dissolving out all soluble matter with hydrochloric acid. The powder thus obtained is made into a paste with water, and baked for eighteen hours at 1,200 degrees in a furnace.

* * *

Dr. T. W. Brophy says: "I hold that any dentist educated within the schools of dentistry on the lines taught, is authorized under the laws of the State chartering the institution to practice in either department, and has equal rights to administer remedies and perform surgical operations with the general surgeon."

* * *

Dr. Oliver says: "Gutta-percha points dipped in chloro-percha to fill roots produce a great many bad results. I have lately been in the habit of taking a hypodermic syringe, inserting the needle up into the root and filling the canal with chloroform. After dipping the gutta-percha point in chloroform I insert into the canal, and force home while the canal is still wet with chloroform."

* * *

In the Question Box recently, in answer of "What to do with two central incisors, which are very prominent, and one a sixteenth of an inch too long," one answer is, if the long one is too sensitive to cut down, extract both and insert two artificial teeth on a bridge. Dr. R. E. Sparks, of Kingston, Ontario, justly says this is another instance of uncalled-for bridge-work. "The man who would sacrifice two sound teeth for so slight a cause," he says, "should be sued for malpractice."

* * *

A dentist in Eugene, Oregon, writes to know if an amalgam is good which, in mixing with mercury in the palm of the hand, leaves a stain?

Yes. The stain comes principally from the silver. File a little pure silver and mix it with mercury in the palm of the hand, and see if it does not stain. If you amalgamate pure tin with the mercury you will have less stain. If the ingredients of an alloy

are overheated in melting there will be much more of this black oxid. We have never seen an amalgam of silver and tin which, in mixing in the hand, did not leave a stain. For many years our custom was, after mixing with mercury, to wash with soda water, and then dry by pressing it in sleazy muslin. It stains less if gold and platinum are ingredients, because these make the alloy much harder.

* * *

Dr. Thomas W. Evans, a generous American, now in Paris, handed over to the Paris Committee on the Lafayette Home the title to the mansion, No. 187 Rue de la Pompe, near the Avenue du Bois de Boulogne, to be used for the accommodation of American young women art students. Of the fifty rooms, twenty-five are already completely furnished, and, together with the music hall, dining-room, library, bath-room, kitchen and lingerie, were ready for occupation and opened on October 15th, on which day more rooms were ready to receive occupants. Dr. Evans is well known for his great generosity; but perhaps nothing that he has ever done is so worthy of praise as this gift to young American art students in Paris.

* * *

TREATMENT OF BROKEN IMPRESSIONS.—That portion of the impression coming away with the tray is placed on a blotting pad, and the pieces as they are removed are placed by the side of the tray; those belonging to the right side of the mouth at the right of the tray, and those of the left to the left. This blotting pad, you will see, answers a threefold purpose: of a nice clean piece of paper on which to lay the impression, to keep the instrument bracket clean, and something on which to carry the impression to the laboratory; and it also assists in the hardening of the plaster by absorbing the moisture, so that in a few minutes it may be handled without fear of breaking in the process of putting together.

* * *

SURGERY BY THE DENTIST.—Dr. Brophy, in Colombian Congress: Surgery as practiced by the oral surgeon, may be done by any one taught in our dental schools on the special subject. It has been said that dentists should not make operations beyond the teeth, because if the oral or dental surgeon makes an operation, and it results in injury, or is not a success, he lays himself open to legal prosecution for want of education in that particular department. I hold, and always have held, that the graduate in the school of dentistry who has listened to lectures on any subject may practice in his special line without any more danger of being prosecuted.

FOR OUR PATIENTS.

DENTAL SONG—A PARODY.

Drill, drill, drill,
With thy dental machine, said she ;
And I would it were seemly to utter
The groans that arise in me.

Oh, well for the laughing maid
Whose teeth are pearly and sound !
Oh, well for the youth in whose molars
No cavities deep are found !

They all pass the dentist's office
Without a thought of fear :
But oh, that my name need nevermore
In his little book appear !

Drill, drill, drill,
With the cold, gray steel, said she ;
But the tender nerve of a tooth that is dead
Will never come back to me.

Mary S. Lothrop, in Boston Transcript.

THE DRAWING-ROOM.

"Mother, what could Henry have meant? I invited him into our parlor this afternoon, and he said he really had not time to stay; but invited me to go with him and see his splendid drawing-rooms. It seems to me he is taking on airs since his return."

"I cannot divine what he meant, Mariah. I did not know he was keeping house, or that he was even married."

"I wish I had gone with him. But he made himself all the more mysterious by saying that generally he had a reception every afternoon, and that it would not have been safe for him to have come home with me had he not informed his servant of the exact time he would return."

"Did he say where he resided?"

"I was too perplexed to ask; but he really embarrassed me by saying that though he had very nice rooms, he believed he himself was the greatest attraction. Now, that is not at all modest."

"I cannot understand him, my child; he must have become a very noted man."

"Mamma, you remember pretty Anna Tucker?"

"Yes; that modest, sensible girl."

“Well, if you will believe it, he told me that yesterday he drew her into his best chair and put his arms around her neck, and—he didn’t tell me what else.”

“The idea! And he told you that to your face? Impudence!”

“Yes; and he said he made her cry, and that he so disheveled her hair that it took her half an hour to straighten it out. Yet, when she left, she *thanked* him for what he had done.”

“He must be crazy. You will certainly have nothing more to do with the impudent rascal!”

“Wife,” interrupted the husband, as he laid down his paper, “if you are speaking of Henry Stanley, he did not exaggerate in anything Mariah has said. If you cannot credit it, visit him at 300 Main street, and you will be convinced. I have seen him actually hugging ladies, and though they must make an outcry, yet they would thank him. He is a dentist.”

While visiting a young dentist, some time since, a fine-appearing young lady entered to have her teeth attended to. She was graciously received and the condition of her teeth noted. All went well till he asked her name and address, when it appeared she was the nurse to the children of the lady for whom he had worked in the morning. His demeanor changed in a moment. In the most abrupt manner he put up his instruments and said:

“Tell your mistress I have no time to attend to you.” And she was sent out without any further ceremony. After she had gone we had the curiosity to ask what had so suddenly changed his demeanor.

“Why,” said he, “she was nothing but a servant. The idea of her coming to me for work! Her mistress ought to have known better.”

“Don’t you work for laboring people?” we ventured to ask.

“Of course not; I should soon lose cast with the upper class if I did.”

“She seemed to be a nice, clean, intelligent lady.”

“All of that; but we must draw the line somewhere, and I draw it between the working class and their employers. That woman will take offense at my snubbing her nurse, but she would have commended me for snubbing some one else’s nurse. But after I give her my explanation she will think all the more of me for my dignified position. These aristocratic families like this exclusiveness.”

How we despised that young man. In our opinion his conduct was contemptible. What was he but a laboring man—a servant of

the public? We are all servants of one another; if we are not, the world has little use for us. We can see a reason for refusing to work for a dirty person, either in character or body, but to make low social standing the offense is a base subserviency to pride, selfishness and wicked prejudice.

It will not do to joke too seriously with our patients. One day two young gentlemen came into my office, one to have a tooth out and the other to look on. Examining the offending member I saw it was simply a very loose root and would be easily drawn; but I said:

"Terrible! That is terrible! I hope you will be able to stand it."

By this time the young man had taken the chair, and I reached for my forceps,—when, lo, he had fainted! Beckoning to the other for a glass of water near him, I found him fainting also,—and down he fell to the floor.

To pay for my joke I had quite a time restoring them and regaining their confidence, so as to proceed. The root came as easily as I had expected, but they never came for other work.

While we should not be harsh or give unnecessary pain, we should be thorough. Some of us are too tender, too anxious to have the name of being careful and agreeable—of not hurting. Much superficial work is the result. To indulge every whim of a patient is sure to bring on our heads their after condemnation; for when their work fails they forget it was because they were allowed to have their own way. Yet the blame should be on us, for, as we must take the responsibility of the work, we should maintain our position as master of the situation.

A nice appearing lady came into our office, saying: "Doctor, I have heard you were a very careful dentist. Now, if you will not hurt me, I will have my teeth filled."

"I can hardly promise that," we replied, "but I will do my best."

"But you must promise you will not hurt or I will have nothing done."

"I think I shall please you," we added, and she took the chair.

We had hardly more than commenced the excavation of a cavity when she exclaimed: "There, that will do, doctor. Now, just fill it, and I will take the responsibility of its not coming out."

"Oh, I could not do that; it is not half prepared."

"Well, but it is beginning to hurt."

So she continued to interfere till we were vexed to half do our work. In six or eight months we began to hear of her complaints that we were a poor dentist.

"Just look here," she would say; and sure enough there was the evidence plain enough. "I will never go to that dentist again," she would add.

We would try and explain the reason to our friends who brought the complaint; but in every instance they would reply, just as they ought to, "But, doctor, you had better not have done the work at all."

Micro-organisms, both vegetable and animal, are an important agency in all nature. There is no life without them, and no death not unchanged to life by them. The air we breathe, the water we drink and the food we eat, are vitalized by them. These minute organizations are not our enemies, but our friends. Even those called poisonous do not produce the poisonous condition, but are the result of it. They do not come to bring death, but to take it away into new forms of life. Of course, microbes generated by disease will, under fostering conditions, produce disease; but even these are generally innocuous on healthy tissue. The surfaces of the lungs, and all other mucous surfaces exposed to the air, are charged, when in a healthy condition, with a power which destroys inimical bacteria, and harbors only those essential to its life and growth. Even those forms of life of a larger size, such as gnats, fleas, mosquitoes and flies, and even polywogs and tadpoles, are scavengers; and the low forms of vegetable life in stagnant pools, marshes and pest holes, purify water, earth and air.

Why should some men of considerable sense show old age while yet in their prime? The sweet juices of their nature all dried up, or what is worse, soured, and face graveward? While there is life there may be growth and sunshine and usefulness. Old? Retired? Useless? Some men of many years do not know what these words mean. They are only ripe for usefulness and enjoyment. Like the grand old man of England, they cannot be put into the corner.